

AGENDA
REGULAR MEETING DES MOINES CITY COUNCIL
June 14, 2007 - 7:30 p.m.

CALL TO ORDER - Mayor Sheckler

PLEDGE OF ALLEGIANCE

ROLL CALL

CORRESPONDENCE

COMMENTS FROM THE PUBLIC: At this time you are invited to comment on items that you wish to bring to Council's attention. Please sign in prior to the meeting and limit your comments to three minutes or less.

BOARD & COMMITTEE REPORTS

PRESIDING OFFICER'S REPORT

COUNCILMEMBER COMMENTS

ADMINISTRATION REPORTS

CONSENT CALENDAR*

1. Motion is to approve the regular minutes of May 10, 2007.
2. Findings: Vouchers audited and certified by the auditing officer as required by RCW 42.24.080, and those expense reimbursement claims certified as required by RCW 42.24.090, have been recorded on a listing which has been made available to the City Council.

Motion: As of this date the Des Moines City Council, by unanimous vote, does approve for payment those vouchers and payroll transfers included in the above list and further described as follows:

Claim checks #109339 through #109566 & electronic fund transfers in the total amount of \$1,472,010.96

Payroll fund transfers in the total amount of \$320,974.08

3. Draft Resolution No. 07-111 - Title: A Resolution of the City Council of the City of Des Moines, Washington, relating to Claims for Damages, and appointing Acceptance Agents for Claims for Damages filed against the City pursuant to chapter 49.60 RCW.

MOTION is to approve Draft Resolution No. 07-111.

4. Motion is to approve the professional services contract Supplemental Agreement No. 1 with INCA Engineers, Inc. for the repair of a landslide that occurred in January of 2007 on Des Moines Memorial Drive in the amount of \$64,684.90 and to authorize the City Manager to sign the agreement substantially in the form as submitted, and further to authorize the City Manager to approve contract changes up to 10% of the contract amount.

5. Motion is to remand to the Public Safety and Transportation Committee the following two items:
1) Revision of the Des Moines Street Development Standards, and 2) Development of a proposal for City Council consideration of a photo enforcement program for stop lights and/or school zone speed limits.

*Remand
6/25 ST*

*Remand
ST*

6. Motion is to approve the agreement with Moffatt & Nichol for engineering, design and permitting services for the Bulkhead Replacement Project, Phase 1, and authorize the City Manager to sign the agreement substantially in the form as submitted.

7. Draft Resolution No. 07-121 - Title: A Resolution of the City Council of the City of Des Moines, Washington, expressing the Council's intent for the City staff and City Council to work cooperatively with the City of SeaTac to coordinate transportation and land use planning and development efforts in the 24th/28th Avenue South and International Boulevard/Pacific Highway South (SR 99) corridors.

MOTION is to approve Draft Resolution No. 07-121.

*NOTE: Items on the Consent Calendar are either routine or have been previously discussed. Any item may be removed by a Councilmember.

PUBLIC HEARING

Draft Resolution No. 07-092 - Adopting 6 Year Transportation Improvement Program 2008-2013

SUMMARY: Each year all cities and counties in Washington must submit a six-year transportation improvement program to the State. The purpose of these plans is not only to provide a planning tool for the individual agencies, but also to provide a consistent method of coordinating interagency needs and funding requirements. Staff recommends Council approve the draft resolution adopting the Six-Year Transportation Improvement Program for Des Moines for the years 2008-2013.

Staff Presentation: Planning, Building & Public Works Director

PUBLIC HEARING

Draft Resolution No. 07-106 Landmarque Modified Subdivision

SUMMARY: The purpose of this hearing is to determine if the proposed preliminary townhouse modified subdivision is consistent with the requirements specified in DMMC 17.20 and 18.10. Council will review the approval criteria to determine if the proposal satisfies the criteria, and either approve, approve with conditions, or deny the request.

Staff Presentation: Land Use Planner II

OLD BUSINESS

NEW BUSINESS

1. Draft Resolution No. 07-120 Approving Mediterranean Heights Final Plat

SUMMARY: The purpose of this agenda item is to provide Council with information related to the subdivision entitled "Mediterranean Heights" enabling them to take action on the final plat development application. Staff recommends that the Council approve the proposed final plat.

Staff Presentation: Development Services Manager

2. Des Moines Activity Center Landscaping Project Bid Award

SUMMARY: The purpose of this agenda item is to award a Small Works Project for the landscaping of the Des Moines Activity Center.

Staff Presentation: Parks and Recreation Director

NEXT MEETING DATE - Regular Meeting June 28, 2007



PUBLIC HEARING

Draft Resolution No. 07-106 Landmarque Modified Subdivision

Sign Up Sheet

SPEAKERS WILL BE CALLED IN ORDER

PLEASE PRINT

Name	Address
1. David Litowitz	2715 64th Ave NE Tacoma
2. Paul Morrow	726 AUBURN WAY N.
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Memorandum



To: City Council Members
CC: City Manager, City Attorney & City Clerk
From: Jason Sullivan
Date: June 14, 2007
Re: Council Member Question for Landmarque

Easement's:

1. The subdivision code requires 20 foot easements for utilities. Would this apply to the sewer on lots 10 through 17? It has not been shown.

The sewer easement located on lots 10 through 17 is a pre-existing easement. Currently, the DMMC presents conflicting concepts with regards to utility easements. On one hand the code indicates that the easement width should be the decision of the utility purveyor; however, it requires that the minimum easement is 20 feet wide. Since the easement only serves the district the decision related to the width of the easement should be the districts decision not the City's. During the review of the plat staff contacted Midway Sewer district to inquiry if the district would like to enlarge the easement. The district informed staff that the existing easement was sufficient and did not want a 20' wide easement.

17.36.130 Utilities and related improvements – Easements.

Utility lines not located within rights-of-way or vehicular access tracts shall be within easements. All easements shall meet the standards of the serving utilities; provided, that easements for sewer, surface water, and water lines shall have a width of at least 20 feet.

2. Who is the grantee of the 10 foot drainage easement on lots 45 through 48? (King County, city, private) Are there pipes in the easement? Are they public or private? Should the 20 foot easement apply? Should the easement be released?

The 10-foot drainage easement across lots 45-48 is private. But there is no pipe within it. Being that the easement is private, the city should not be involved in deciding whether or not it is released, but should make sure that building setback criteria is met if it is not released. If not released, the building setback from the easement line is 5-feet.

3. Does the 5 foot sewer easement that crosses the upper portion of the site have any pipes in it? If so shouldn't the 20 foot width apply?

There is no pipe within the easement. The side sewer that the easement is for will be provided in a different location. The new side sewer easement is located between lots 6 and 7 and is 20 feet wide.

Memorandum



To: City Council Members

CC: City Manager, City Attorney & City Clerk

From: Jason Sullivan

Date: June 14, 2007

Re: Council Member Question for Landmarque

Wetlands:

1. Please provide a map that depicts ^{McSorley} Massey Creek and it's associated wetlands that are near the parcel and show any stream buffers or wetland buffers that would extend on to the proposed subdivision.

Attached to this memo is a map (Exhibit 1) that shows the location of Massey Creek in relation to the proposed subdivision. Based on the aerial photo and the wetland report prepared by Sewall Wetland Consulting (Attachment 11 of the Agenda Item), the creek is over 100 from the property and there are no other associated wetlands or streams that would have buffers that would extend on to the proposed subdivision site.

2. Are there any wetlands on the city of Kent parcel adjacent to the proposed subdivision?

Based on the Wetland Report and sites visits there are no delineated wetlands located on the property owned by the City of Kent. Additionally, the property in questions was developed by the City of Kent as a Regional Detention Facility.

3. Please provide maps and supporting calculations in accordance with the city code for the filling of wetland "B". As examples: what is the area of wetland B? What is the area of wetland B's required buffer?

The location of wetland "B" is illustrated on Sheet 1 of 3 of the preliminary subdivision which was included as part of Attachment 14 to the Agenda Item. Based on the wetland report prepared by Sewall Wetland Consulting (Attachment 11 of the Agenda Item), wetland "B" is 9,113 square feet. This information is further discussed on page 11 of the Agenda Item under the Environmentally Sensitive Area's Section.

4. What is the area of wetland A, What is the area of wetland A;s required buffer. What is the area required to be replaced for wetland b and its buffer.

The location of wetland "A" is illustrated on Sheet 1 of 3 of the preliminary subdivision which was included as part of Attachment 14 to the Agenda Item. Based on the wetland report prepared by Sewall Wetland Consulting (Attachment 11 of the Agenda Item), wetland "A" is

9,021 square feet. This information is further discussed on page 11 of the Agenda Item under the Environmentally Sensitive Area's Section.

5. What is the total area proposed for the improved wetland and what is it's shape?

The applicant is proposing to create 9,115 square feet of wetland adjacent to Wetland "A". Pursuant to DMMC 18.86.107, the applicant is only required to replace the amount of wetland filled, not the amount of buffered filled. A more in depth discussion of this is provided on page 12 of the Agenda Item and on page 8 the wetland report prepared by Sewall Wetland Consulting (Attachment 11 of the Agenda Item).

6. What is the total area proposed for the improved wetland A's buffer and what is it's shape?

Under the conceptual mitigation plan there are 29,456 square feet of buffer enhancement and replacement around the existing Wetland "A" and wetland mitigation area. The proposed buffer for the wetland is consistent DMMC § 18.04.663, which requires a 35' buffer for important wetlands. The shape of the wetland and buffer is illustrated on Sheet 1 of 3 of the preliminary subdivision which was included as part of Attachment 14 to the Agenda Item.

7. How are the buffers along Highway 99 addressed and adjusted?

The only portion of the exiting wetland that does not have a buffer is located adjacent to Pacific Highway; however, this buffer was legally altered by the original development of Pacific Highway and the recent reconstruction of the roadway. The applicant is not being required to restore a buffer that was legally alter by the development of the roadway.

8. There are several proposed sewer and stormwater pipes within the existing wetland A and the improved wetland A buffers. Shouldn't this be avoided? What does the code say, what analysis was done and what attempts to avoid were made?

Some of the pipes that are currently shown with in the buffer can be removed during the review of the final engineering. Pursuant to DMMC 17.16.190, approval of the preliminary plat only approves the conceptual layout, approval of the final engineering design will be done after preliminary plat approval.

17.16.190 Effect of preliminary subdivision approval.

(1) General. The approval of a preliminary subdivision by the city constitutes approval of the general concept and layout of the plat as approved. Preliminary subdivision approval does not signify acceptance of all engineering details of the plat. These engineering details remain subject to approval by the public works director.

(2) Construction of Certain Improvements. The applicant shall submit detailed design documents for all required right-of-way, easement, utility, or other improvements to the community development department. These documents shall be reviewed and approved by the public works director and planning official. Following such approval, the city may issue the necessary permits to construct the improvements.

(3) Deviations from the Preliminary Plat. The city shall not authorize improvements to be constructed, unless the improvements are consistent with the plat concept and layout of the preliminary

June 1, 2007

subdivision approved by the city council. In making such a determination, the public works director and planning official shall utilize the criteria for minor deviations set forth in DMMC 17.16.230(2). If consistency with the criteria is not clear, the public works director or planning official shall request a determination from the city council.



Landmarque Townhouse Development

Legend

 Landmarque Townhouse Development

 Kent

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Memorandum

To: City Council Members

CC: City Manager, City Attorney & City Clerk

From: Jason Sullivan

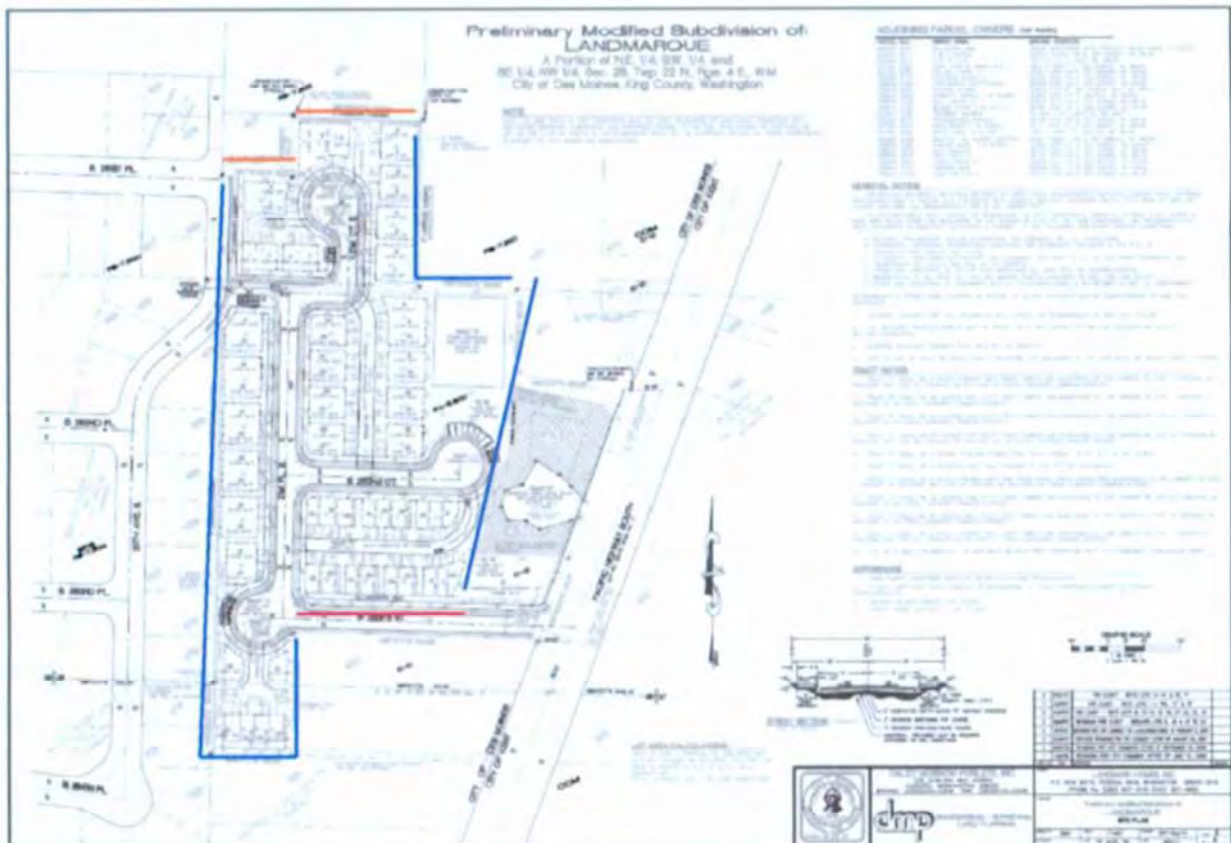
Date: June 14, 2007

Re: Council Member Question for Landmarque



1. Please show a map of the perimeter front, side and rear yards as determined by the director. Please show a map showing compliance with all yard requirements.

As required by DMMC 18.10.040, the Director has established the perimeter lines for the Landmarque Subdivision based on the layout of the residential portion, primary access point of the subdivision, and the orientation of the lots within the subdivision:



Front Perimeter Line
Side Perimeter Line
Rear Perimeter Line

2. Have we required adequate setbacks for the lots and homes adjacent to the commercial properties (44 through 48, 35 through 42)?

DMMC 18.10.040 requires a 10' setback from all side/rear perimeter lines and a 20' setback for all front perimeter lines. Based on the Director's established perimeter lines, the setbacks shown for lots 44 through 48, and 35 through 42 are consistent with the City's Municipal Code.

18.10.040 Dimensional standards.

(1) Lot Area.

(a) Except as provided below, the minimum required lot area shall be 7,200 square feet. Within a multiple lot subdivision the minimum lot area shall be deemed to have been met if the average lot area is not less than 7,200 square feet. In computing the average area of lots in a subdivision not more than 25 percent of the number of lots may contain an area less than 7,200 square feet and in no case shall a lot contain less than 6,400 square feet of area. For lots containing more than 7,200 square feet of area not more than 8,000 square feet of area may be credited in determining the average.

(b) The minimum required area for a townhouse development shall be 7,200 square feet. Within a townhouse development, internal lots for the purpose of individual ownership of dwellings with undivided interest in the common areas and facilities may be less than 7,200 square feet in area.

(2) Lot Area Per Dwelling Unit.

(a) For duplexes, the lot area per dwelling unit shall not be less than 3,600 square feet. Within multiple lot subdivisions where lots contain an area less than 7,200 square feet but not less than 6,400 square feet, the lot area per dwelling unit shall be one-half of the area of the lot.

(b) For townhouse developments, the overall lot area per dwelling unit shall not be less than 3,600 square feet. Within a townhouse development, internal lots for the purpose of individual ownership of dwellings with undivided interest in the common areas and facilities may be less than 3,600 square feet in area.

(c) In no case shall residential density exceed 12 dwelling units per acre. For properties where the Greater Des Moines Comprehensive Plan specifies a residential density less than 12 units per acre, development upon that property shall not exceed the residential density specified by the Greater Des Moines Comprehensive Plan.

(3) Lot Width.

(a) Except as provided below, every lot in an RA-3,600 zone shall have a width of not less than 60 feet.

(b) Every townhouse development shall have a width of not less than 60 feet. Within a townhouse development, internal lots that provide for individual ownership of dwellings with undivided interest in the common areas and facilities may have a width of less than 60 feet.

(4) Front Yard.

(a) Except as provided below, every lot shall have a front yard with a depth of not less than 20 feet.

(b) Within a townhouse development, the following front yard requirements shall apply:

(i) A front yard not less than 20 feet in depth shall be provided adjacent to the perimeter lot front line of a townhouse development. The community development director shall determine which lot perimeter lines are lot front lines.

(ii) Every internal lot shall have a front yard with a depth of not less than 10 feet. This provision shall not apply where a 20-foot front yard is provided as specified by subsection (i) above and a combined front yard 30 feet in depth would be required.

(iii) For lots containing a dwelling and on-site parking, on-site parking shall not be located closer than 20 feet from the lot front line.

(5) Side Yard.

(a) Except as provided below, every lot shall have a side yard on each side of the lot. The side yards shall have a width of not less than five feet on one side and 10 feet on the other side.

(b) Within a townhouse development, the following side yard requirements shall apply:

(i) A side yard not less than 10 feet in depth shall be provided adjacent to the perimeter lot side lines of a townhouse development. The community development director shall determine which perimeter lot lines are side lot lines. There may be no perimeter lot side lines.

(ii) Except where townhouse dwellings are attached, every internal lot shall have a side yard of not less than five feet.

(iii) Every internal corner lot shall have a side yard on the street side of the lot. The side yard adjacent to the street side line shall have width of not less than 10 feet.

(6) Rear Yard.

(a) Except as provided below, every lot except through lots shall have a rear yard with a depth of not less than 20 feet.

(b) Within a townhouse development, the following rear yard requirements shall apply:

(i) **A rear yard not less than 10 feet in depth shall be provided adjacent to the perimeter lot rear line of a townhouse development. The community development director shall determine which lot perimeter lines are rear lot lines. There may be no perimeter lot rear lines.**

(ii) Every internal lot except through lots shall have a rear yard with a depth of not less than 10 feet.

(7) Placement of Buildings.

(a) The distance between a building containing one or more dwelling units or accessory living quarters and any other building shall be not less than 10 feet.

(b) On the rear third of an interior lot accessory buildings not containing accessory living quarters may be built to the lot side lines and the lot rear line; provided, not less than 10 feet of the lot rear line shall be free and clear of buildings; and provided further, if the lot rears upon an alley, a garage with a vehicular entrance from the alley shall maintain a distance of not less than 15 feet from the centerline of the alley.

(c) On the rear third of a corner lot accessory buildings not containing accessory living quarters may be built to the lot interior side line and the lot rear line; provided, if the lot rears upon an alley a garage with a vehicular entrance from the alley shall maintain a distance not less than 15 feet from the centerline of such alley;

(d) On the rear third of a reverse corner lot accessory buildings not containing accessory living quarters may be built to the lot interior side line, but no building shall be erected closer to the lot rear line than five feet unless an alley intervenes, in which case accessory buildings may be built to the lot rear line unless the accessory building is a garage with a vehicular entrance directly from the alley, in which case such building shall maintain a distance of not less than 15 feet from the centerline of the alley.

(e) In all cases a 10-foot side yard adjacent to a street side line shall be maintained.

(8) Height. No building or structure may exceed a height of 30 feet.

(9) Lot Coverage.

(a) Except as provided below and for churches and schools which shall conform to the lot coverage limitations provided by DMMC 18.08.020 (Permitted uses), all buildings, including accessory buildings and structures but not including any open areas used to provide parking spaces and private swimming pools on residential lots, shall not cover more than 35 percent of the area on the lot.

(b) Within a townhouse development, the maximum permitted lot coverage shall be 50 percent of the area of the lot. [Ord. 1197 § 9, 1997.]

Memorandum



To: City Council Members

CC: City Manager, City Attorney & City Clerk

From: Jason Sullivan

Date: June 14, 2007

Re: Council Member Question for Landmarque

What conditions of approval were made during the rezone that effect the subdivision?

There were 7 conditions of approval that were tied to the Mitchell-Chamlian Rezone approved under Ordinance 1372. Of the 7 conditions of approval, 2 provided specific guidance related to the future development of the property. A brief synopsis of these two conditions is provided below:

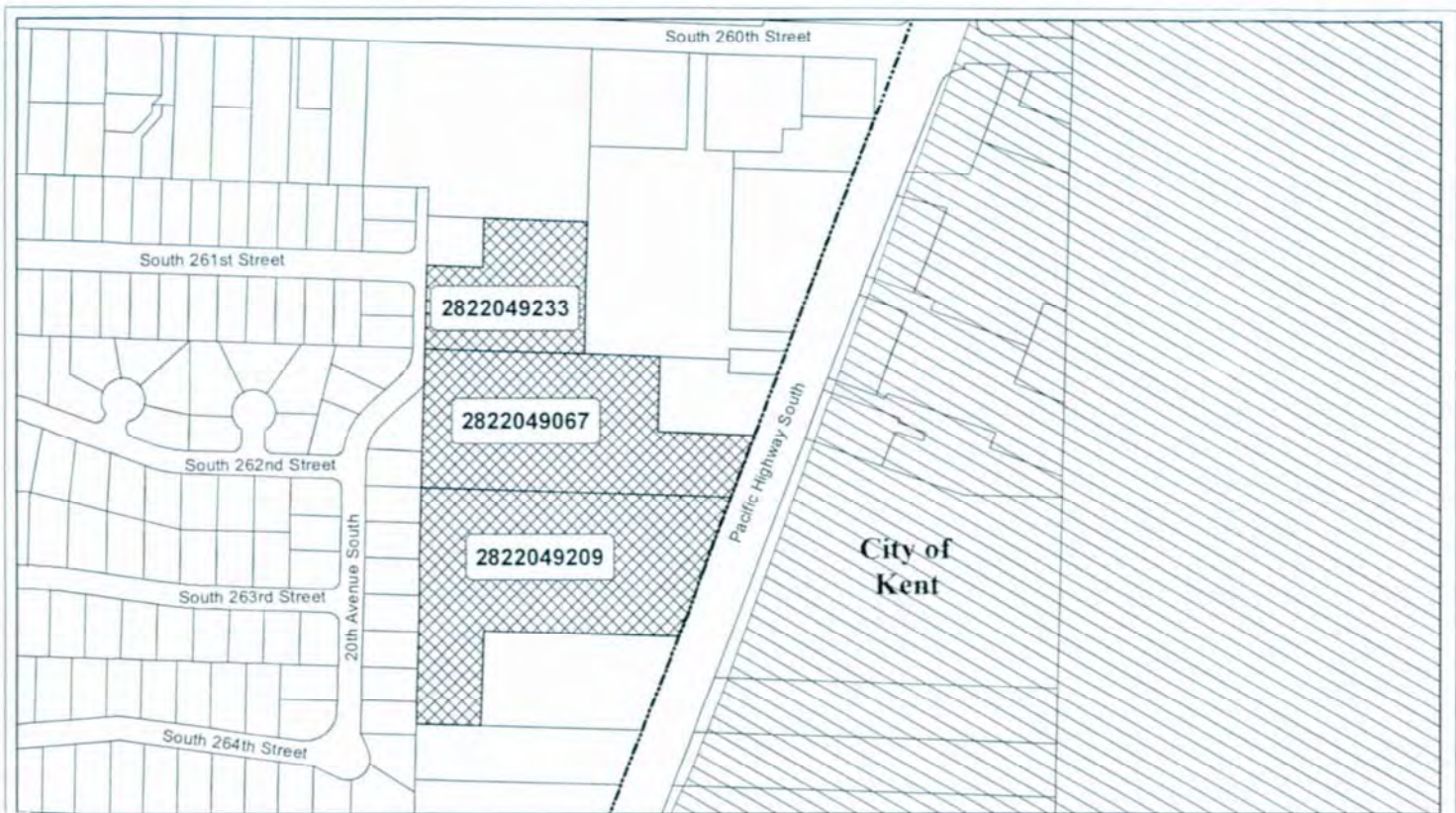
1. *The rezone of parcel #282204-9233 to RA3600 is approved only with concurrent townhouse development of parcels 282204-9067 and 282204-9209.*

All three parcels are included in the proposed Landmarque Townhouse Development as required by this condition of approval. Attached is a map that illustrates the location of all three parcels (Exhibit 1).

2. *Access from these properties along 20th Avenue South and South 261st Place shall be restricted to emergency vehicles only.*

An emergency access is provided at the intersection of 20th Avenue and 261st Place as part of the project. The design of the emergency access includes a 20' wide paved fire lane within a 50' right-of-way and is controlled by an Opticom gate. This design has been reviewed and approved by the City's Transportation Division and the Fire Marshal for South King Fire and Rescue.

Attached to this memo is a copy of the Conditions of Approval for Ordinance 1371 (Exhibit 2).



Landmarque Townhouse Development

Legend



Landmarque Townhouse Development



Kent

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Memorandum



To: City Council Members

CC: City Manager, City Attorney & City Clerk

From: Jason Sullivan

Date: June 14, 2007

Re: Council Member Question for Landmarque

Why did staff not require the applicant to increase the size of the lots to be more compatible with the lot sizes of the surrounding area or the minimum required by the zoning code?

The framework for all land use decision within the City of Des Moines is governed by DMMC § 18.56.020(1) and RCW § 36.70B.030. Pursuant to DMMC 18.56.080, subdivision are considered Type IV land use action based on the amount of discretion exercised by the decisionmaker and the degree of impact associated with the decision as provided by DMMC § 18.56.020(5). During the review of a subdivision staff is responsible for preparing a report which provides the analysis of the project consistent with the City's development regulation and identify critical flaws and deviation for the standards request by the applicant.

18.56.020 Framework for decision.

- (1) **The scope of a land use action covered by this chapter shall be limited as specified by RCW 36.70B.030 as presently constituted or as may be subsequently amended.**
- (2) Except when a land use action is categorically exempt from SEPA, environmental review shall be conducted concurrently with review of other proposed land use actions requested by an applicant. Integrated and consolidated review shall be provided as required by RCW 36.70B.120 and 36.70B.140 as presently constituted or as may be subsequently amended.
- (3) As allowed by RCW 36.70B.140(1) as presently constituted or as may be subsequently amended, the following land use actions are not subject to the provisions of RCW 36.70B.070, 36.70B.080, 36.70B.090, 36.70B.110, 36.70B.120, and 36.70B.130 because the city council has determined that these projects present special circumstances that warrant a review process different from the process specified by this chapter:
 - a. Business park master plans;
 - b. Street vacations and other actions relating to use of public areas or facilities;
 - c. Type VI land use actions; and
 - d. Abatement of nonconforming uses.
- (4) As authorized by RCW 36.70B.140(2) as presently constituted or as may be subsequently amended, the following Type I land use actions shall not be subject to the provisions of RCW 36.70B.060, 36.70B.110, 36.70B.120, and 36.70B.130 as presently constituted or as may be subsequently amended:

- a. Lot line adjustments.
 - b. Construction permits required under Title 14 DMMC that are categorically exempt from environmental review under chapter 16.04 DMMC (SEPA Rules), or for which environmental review has been completed in conjunction with other project permits.
- (5) **Land use actions are classified into six types, based upon the entity responsible for the decision, the amount of discretion exercised by the decisionmaker, the degree of impact associated with the decision, the amount and type of public input sought, and the type of appeal available. The six categories of land use actions are as follows:**
- a. Type I. Administrative decision made without legal requirement for public comment.
 - b. Type II. Administrative decision made after legally required opportunity for public comment.
 - c. Type III. Quasi-judicial and other decisions by hearing examiner made after legally required opportunity for public comment.
 - d. **Type IV. Quasi-judicial and other nonlegislative decisions by city council made after legally required opportunity for public comment.**
 - e. Type V. Quasi-judicial and other nonlegislative decisions by city council made without legal requirement for public comment.
 - f. Type VI. Legislative decision by city council made after legally required opportunity for public comment.
- (6) The land use review procedures specified by Title 17 DMMC (Subdivisions) for a land use action explicitly covered by that title shall control over the procedures specified by this chapter. [Ord. 1341 § 1, 2004; Ord. 1287 § 1, 2001; Ord. 1174 § 2, 1996].

RCW 36.70B.030 Project review — Required elements — Limitations.

1. **Fundamental land use planning choices made in adopted comprehensive plans and development regulations shall serve as the foundation for project review. The review of a proposed project's consistency with applicable development regulations, or in the absence of applicable regulations the adopted comprehensive plan, under RCW 36.70B.040 shall incorporate the determinations under this section.**
2. During project review, a local government or any subsequent reviewing body shall determine whether the items listed in this subsection are defined in the development regulations applicable to the proposed project or, in the absence of applicable regulations the adopted comprehensive plan. At a minimum, such applicable regulations or plans shall be determinative of the:
 - a. Type of land use permitted at the site, including uses that may be allowed under certain circumstances, such as planned unit developments and conditional and special uses, if the criteria for their approval have been satisfied;
 - b. Density of residential development in urban growth areas; and
 - c. Availability and adequacy of public facilities identified in the comprehensive plan, if the plan or development regulations provide for funding of these facilities as required by chapter 36.70A RCW.
3. During project review, the local government or any subsequent reviewing body shall not reexamine alternatives to or hear appeals on the items identified in subsection (2) of this section, except for issues of code interpretation. As part of its project review process, a local government shall provide a procedure for obtaining a code interpretation as provided in RCW 36.70B.110.
4. Pursuant to RCW 43.21C.240, a local government may determine that the requirements for environmental analysis and mitigation measures in development regulations and other applicable laws provide adequate mitigation for some or all of the project's specific adverse environmental impacts to which the requirements apply.

5. Nothing in this section limits the authority of a permitting agency to approve, condition, or deny a project as provided in its development regulations adopted under chapter 36.70A RCW and in its policies adopted under RCW 43.21C.060. Project review shall be used to identify specific project design and conditions relating to the character of development, such as the details of site plans, curb cuts, drainage swales, transportation demand management, the payment of impact fees, or other measures to mitigate a proposal's probable adverse environmental impacts, if applicable.
6. Subsections (1) through (4) of this section apply only to local governments planning under RCW 36.70A.040.

ATTACHMENT 1

ORDINANCE NOS. 1371 & 1372

CONDITIONS OF APPROVAL OF REZONE AND COMPREHENSIVE PLAN
AMENDMENT

The following restrictions and conditions are adopted by the City Council of the City of Des Moines for the purposes of clarifying and facilitating the understanding of the conditions associated with the rezone and Comprehensive Plan land use map re-designation of the properties identified within these ordinances.

1. The applicant shall follow all applicable plans, codes and regulations during the land use permitting and building construction phases of these properties.
2. The rezone of the properties shall be contingent upon approval of the associated Des Moines Comprehensive Plan amendment.
3. The Comprehensive Plan land use map re-designation of the properties shall be contingent upon the approval of the associated rezone.
4. The City Council may impose additional conditions or limiting terms during the land use permitting phase of these properties when it is determined to be in the public interest and furthers the health, safety and welfare of the residents of the City of Des Moines.
5. The rezone of parcel #282204-9233 to RA3600 is approved only with concurrent townhouse development of parcels 282204-9067 and 282204-9209.
6. Access from these properties along 20th Avenue South and South 261st Place shall be restricted to emergency vehicles only.
7. Once effective, as described in the preceding paragraphs, the conditions of approval shall be binding on the parties, their heirs, successors and assigns and shall be a covenant running with the subject properties and shall be filed with the King County Records Office.

Memorandum



To: City Council Members

CC: City Manager, City Attorney & City Clerk

From: Jason Sullivan

Date: June 14, 2007

Re: Council Member Question for Landmarque

Lot area's:

1. What is the total area of the sub division?

As described on page 2 of the Agenda Item, the subdivision includes a total of 10.04 acres or 437,380 square feet.

2. How much is in the RA zone and how much is in the CC zone?

The RA3600 portion of the subdivision is 8.52 acres or 371,194 square feet. The CC portion of the subdivision is 1.52 acres or 66,186 square feet.

3. Of the amount in the RA zone how much is right of way, tracts of various purposes, and lots?

The table on page 10 of the Agenda Item described the amount of area for rights-of-way, tracts, and lots for the entire subdivision. The table below is limited to the portion of the site that is zone RA-3600.

NAME	AREA
Roads	102,190 SF
Storm Water/Park Facilities	23,040 SF
Common Interest Tracts	43,188 SF
Residential Lots	202,776 SF
TOTAL:	371,194 SF

4. Please provide the calculations for the compliance with the area calculations of 18.10.040

The calculations to demonstrate compliance with DMMC § 18.10.040 is provided on page 5 of the Agenda Item under Zoning Code Compliance Section.

Landmarque Townhouse Subdivision

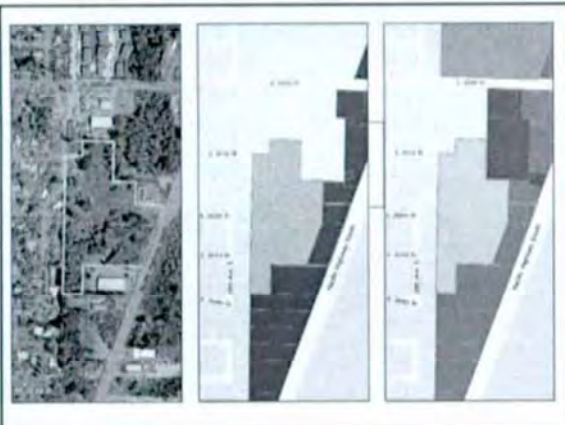
Jason Sullivan

Land Use Planner II

Planning, Building and Public Works Department

Background

- January 2006: Majority of property rezoned from Community Commercial to RA-3600 under Ord. 1372
- April 2006: The applicant submits the requisite subdivision materials for the proposed Landmarque development
 - 66 attached single family homes (Townhouses)
 - 2 detached single family homes
 - 1 commercial lot
- March 2007: A State Environmental Policy Act (SEPA) review for the proposed project was completed; No appeals were filed
- May 2007: Staff determined that project is consistent with the City's Development Regulations and recommends approval of the project.



Subdivision Requirements

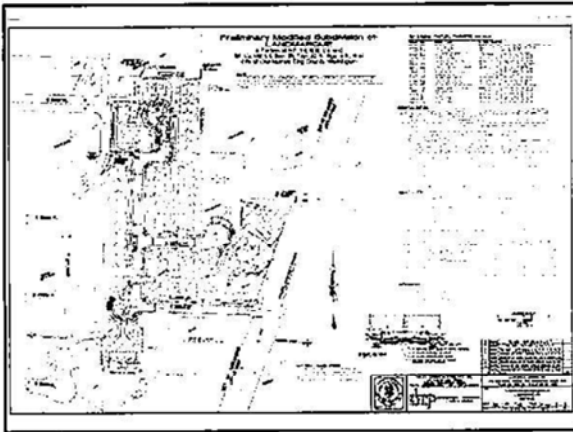
- Consistency with the Comprehensive Plan
- Compliance with Title 18
- Design and Layout Requirements
 - General Layout
 - Public Infrastructure
- Environmentally Sensitive Areas
- Coordinated Development

Requested Deviations

- Subdivision Layout and Design Deviations (DMMC § 17.36)
 - Lot depth to width ratio.
 - Alleys will be built to private street standard but will serve more than four lots.
 - Right-of-way of widths
 - Distance between driveways
 - Distance between intersection

Recommended Conditions of Approval

- Comply with the Environmental Mitigation Agreement
- Submittal of a complete landscaping plan.
- Combine tract "G" into tract "E".
- Final Home Designs will be consistent with Conceptual Home Designs
- Differentiate design through the use of at least two different building materials and different color schemes.
- Submittal of a complete wetland mitigation plan.
- Provide a deed for the surface water detention/park tract and the wetland tract.



Motion

I move to recommend that the City Council approve the preliminary modified subdivision entitled Landmarque subject to the mitigation terms identified in the SEPA mitigation agreement included as Attachment 4 and the seven additional conditions of approval included in the May 7, 2007 administration report

PLANNING, BUILDING, AND PUBLIC WORKS FIRST DRAFT
May 10, 2007

DRAFT RESOLUTION NO. 07-106

A RESOLUTION OF THE CITY OF DES MOINES, WASHINGTON approving the preliminary modified subdivision entitled Landmarque, (hereinafter, the subdivision) subject to conditions specified herein.

WHEREAS, Landmark Homes, Inc. (hereinafter, the applicant) filed an application on March 31, 2006 for a preliminary modified subdivision, and

WHEREAS, Development Services determined that the application met the procedural submittal requirements on April 14, 2007 and subsequently issued a notice of complete application, and

WHEREAS, the subdivision is located on property within the RA-3600 and CC zones, and

WHEREAS, the subdivision provides opportunities for unique and innovative development designs not able to be accomplished under standard subdivision requirements, and

WHEREAS, an environmental checklist for the subdivision was submitted to the City of Des Moines and was reviewed by the SEPA responsible official for the City of Des Moines, and

WHEREAS, the SEPA official determined that adverse environmental impacts could occur and subsequently issued a Mitigated Determination of Non-Significance for the subdivision, and

WHEREAS, the environmental documents have been available for review with the subdivision application during the review process, and

WHEREAS, the Des Moines Planning Agency reviewed the subdivision at its regular meeting on May 7, 2007, and

WHEREAS, the Des Moines Planning Agency, after review of the subdivision at a public meeting and consideration of the recommendations by administration, recommended approval of the application subject to specific conditions, and

WHEREAS, the City Council, in a public hearing on May 24, 2007 considered the subdivision, the environmental documents, recommendations from the Planning Agency, and recommendations from administration; now therefore,

THE CITY COUNCIL OF THE CITY OF DES MOINES RESOLVES AS FOLLOWS:

Sec. 1. Findings of fact. The findings of fact set forth in Exhibit 1, attached hereto and incorporated by this reference, are adopted in full by the City Council in support of its decision to approve the subdivision subject to specific conditions.

Sec. 2. Decision criteria. The criteria used in making the decision are those required by DMMC § 17.20.030 and chapter 18.10 DMMC. The City Council finds that the is in compliance with the required criteria, as set forth in the findings of fact in Exhibit 1, adopted above.

Sec 3. Approved Deviations. Consistent with the provisions of DMMC 17.36.010 and 18.52.100 the following deviations to the subdivision code are approved:

Subdivision Layout and Design Deviations (DMMC 17.36)

- (1) All lots within the subdivision will not meet the lot depth to width ratio, and
- (2) Two alleys will be built to private street standards but will serve more than four lots. Tract D will serve 17 lots and Tract H will serve 16 lots, and
- (3) The requirement to have a minimum distance of 30 feet between driveway and intersection is not met for the joint driveway of lots 54 and 55, and
- (4) The intersection of the alleys and the public ROW is less than 100 feet from the nearest intersection, and
- (5) The ROW width for South 263rd Street and 21st Place South is reduced to 50 feet from 60 feet.

Sec. 4. Approval subject to conditions. ^{LANDMARK} ~~Blueberry Lane~~ is approved subject to the following conditions and modifications:

- (1) The applicant shall comply with the SEPA Environmental Mitigation Agreement dated March 26, 2007.
- (2) Submittal of a complete landscaping plan consistent with the conceptual landscaping elements included in this packet.

- (3) The applicant will combine tract "G" into tract "E" in order to form one continuous 37,446 square feet (0.86 acre) City owned park.
- (4) Homes constructed within the proposed subdivision will be consistent with the conceptual home designs included in this packet.
- (5) When the same or similar building designs are located on the same block, the developer shall differentiate that design through the use of at least two different building materials and different color schemes.
- (6) Submittal of a complete wetland mitigation plan consistent with the conceptual wetland mitigation plan dated November 7, 2006 provided by the applicant.
- (7) The applicant shall provide a deed for the surface water detention/park tract and the environmental sensitive area tract to transfer the ownership of the tracts to the City of Des Moines prior to City Council review of the final plat.

Sec. 5. Approved Preliminary Modified Subdivision Plat Map Entitled Landmarque. The Preliminary Modified Subdivision in Exhibit 2, attached hereto and incorporated by this reference, is adopted in full by the City Council.

Sec. 6. Compliance with other law. Nothing in this resolution shall be construed as excusing the applicant from compliance with all federal, state, or local statutes, ordinances, or regulations applicable to this subdivision other than as expressly set forth herein.

Sec. 7. Resolution attached to approval documents. A certified copy of this resolution, along with the herein referenced findings of fact and preliminary plat, shall be attached to and become a part of the evidence of the approval of said preliminary Planned Unit Development subdivision to be delivered to the applicant.

Sec. 8. Distribution of resolution following council action. Certified or conformed copies of this resolution shall be delivered to the following:

- (1) City of Des Moines Planning, Building and Public Works Department;
- (2) South King Fire and Rescue; and

(3) City Clerk of the City of Des Moines.

Sec 9. Distribution of resolution by planning official. Within five days following adoption of this resolution, the planning official shall distribute the resolution to the applicant, and to each person who submitted timely written or oral testimony to the City Council for inclusion in the record.

Sec. 10. Reconsideration. A request to reconsider this decision of the City Council may be made by the applicant, or by any person who submitted timely written or oral testimony to the City Council for inclusion in the record. The request for reconsideration, in the form of a letter, shall be delivered to the Planning, Building, and Public Works department within 10 days following the date of adoption of this resolution. The request shall contain a clear reference to the preliminary subdivision to be reconsidered and a statement of the specific factual findings or conclusions of the City Council disputed by the person filing the request for reconsideration. The City Council shall reconsider a decision if the council finds that an error of fact, law, or procedure that is more likely than not to affect the outcome of the decision has been made; or if the person requesting reconsideration is seeking to enter previously unavailable information that is more likely than not to affect the outcome of the decision. The request for reconsideration shall be processed in conformance with City Council rules of procedure, Chapter 4.12 DMMC.

ADOPTED BY the City Council of the City of Des Moines, Washington this ____ day of _____, 2007 and signed in authentication thereof this ____ day of _____, 2007.

M A Y O R

APPROVED AS TO FORM:

City Attorney

ATTEST:

City Clerk

FINDINGS OF FACT

07-106
RESOLUTION NO. 06-0224, EXHIBIT 1

~~December 14, 2006~~

The Des Moines City Council, upon review of an application requesting approval of a preliminary modified subdivision allowing for the subdivision of 67 single residential lots and in consideration of information communicated during a public hearing hereby finds:

(A) Modified Subdivision

1. Except where otherwise stated herein, the proposed plat is consistent with the applicable provisions of the comprehensive plan, zoning code, and other City policies and regulations.
 - a. The developer has submitted the requisite permit applications for a preliminary plat utilizing the provisions of a modified subdivision codified in Chapter 17.20 of the Des Moines Municipal Code.
 - b. The application specifically requests to divide 10.04 acres of underdeveloped land into 68 lots for residential use and 1 lot for commercial use.
 - c. The zoning for the property is RA-3600 and CC
 - d. The Preferred Land Use Map for the Des Moines Comprehensive Plan indicates the subject property as preferred for townhouse and commercial developments.
 - e. The Des Moines Planning, Building, and Public Works Department issued a written notice of complete application on April 14, 2007 providing official notice that the application met the procedural submittal requirements established by the City.
 - f. The Des Moines Planning, Building, and Public Works Department issued a notice of preliminary modified subdivision application on May 16, 2006.

- g. A MDNS was issued in accordance with WAC 197-11-350 and DMMC 16.04.110 on March 26, 2007.
 - h. A public comment period for the MDNS was provided from February March 26, 2007 to April 10, 2007 for the SEPA determination.
 - i. The Des Moines Planning Agency met on May 7, 2007 to review the subdivision. There were no public comments at the meeting. The Planning Agency recommended that the Council approve the preliminary modified subdivision. The Planning Agency voted 4-1 in support of this recommendation.
 - j. The Des Moines Planning, Building, and Public Works Department provided a notice of public hearing on May 10, 2007 and provided an additional public comment period from May 11, 2007 to May 24, 2007.
 - k. At the May 24, 2007 public hearing, an opportunity to receive public comment was afforded to that applicant and interested citizens regarding the proposed modified subdivision.
2. There are adequate provisions for drainage ways, rights-of-way, sidewalks, easements, water supplies, sanitary waste, fire protection, power service, parks, playgrounds and schools. These provisions include:
- a. The City has reviewed Traffic Analysis prepared by Traffic Engineers and Transportation Planners dated June 30th 2006.
 - b. The subdivision is served by the development of 4 new public rights-of-way, consistent with City requirements.
 - c. The road layout provides connections to Pacific Highway South.
 - d. Emergency vehicular access is also provided by through an additional connection to 20th Avenue

South. This connection is controlled by an opticom gate.

- e. Deviations to the street standards are authorized by DMMC 18.52.100 and DMMC 17.36.010.
- f. The City has reviewed a Technical Information Report prepared by Daley-Morrow-Poblete, Inc dated March 25, 2006; revised June 30, 2006, October 31, 2006, and February 15, 2007.
- g. The proposed surface water detention vault is consistent with the 2005 King County Surface Water Design Manual.
- h. All electrical and communication systems shall be installed underground by the applicant. Existing above-ground electrical and communication systems located in all rights-of-way adjoining the proposed subdivision and extending from the subdivision to the nearest utility pole also shall be undergrounded.
- i. New fire hydrants within the subdivision will be installed by the applicant. Installation of the new fire hydrant will be done concurrently with the installation of the required right-of-way improvements.
- j. All sewer, water, or surface water utilities will be within the ROW or contained within the appropriate easement.
- k. The applicant is constructing a 23,040 square foot public park.
- l. As part of the City's MDNS the applicant will be required to pay school impact fees to the Federal Way School District in the amount of \$62,532.00.

3. The proposed plat design will serve the public use and interest and is consistent with the public health, safety, and welfare.
 - a. Staff reviewed the proposal and coordinated with the neighboring jurisdiction of Kent.
 - b. Copies of the site plan were provided to the City of Kent during the review of the subdivision since the City of Des Moines jurisdictional boundaries end on the western edge of Pacific Highway South. On August 15, 2006, the City of Des Moines received an email from the City of Kent's Engineering Department which concurred with the proposed intersection of South 263rd Court and Pacific Highway South
4. Additional amenities are provided in the modified subdivisions that are not normally found in a standard subdivision. These amenities include:
 - a. An increased relationship between the public and private realms through the placement of the homes in close proximity to the sidewalk.
 - b. The visual impact of the automobile has been de-emphasized through the use of alley lot homes and street-facing garages located back behind front porches.
 - c. The developer has agreed to incorporate the 14,406 square feet of open space contained in Tract G into Tract E for use as part of the public park. With the inclusion of tract "G" there would be a significant amount of active and passive open space strategically placed together to provide one large area for pedestrians to engage in recreational opportunities. Approximately 85,000 square feet or 20% of the site has been set aside as an open active and passive recreational area.
 - d. Design of infrastructure improvements has been done in such a manner as to enhance the community not just on a functional level but on a visual

level. For example, instead of a standard stormwater pond, a storm detention vault will be constructed with a 23,000 square foot City own park on top of the vault.

(C) WETLAND "A"

1. The City has reviewed a wetland delineation report prepared by Sewall Wetland Consulting, Inc. (formerly B-12 Wetland Consulting, Inc.) dated November 7, 2006.
2. Wetland "A" is an isolated 9,021 square foot scrub-shrub wetland. Vegetation within Wetland A consists mainly of red osier dogwood, willow, and Himalayan.
3. Wetland "A" is classified as an important wetland, due to its size (less than 1 acre), presence of two vegetative classes, and the fact that it is not located in a stream corridor.
4. Pursuant to DMMC § 18.86.070 "Important" wetlands require a 35 foot buffer measured from the wetland edge.
5. The wetland will be placed within a separate tract and deeded to the City at the time of final plat.

(D) WETLAND "B"

1. The City has reviewed a wetland delineation report prepared by Sewall Wetland Consulting, Inc. (formerly B-12 Wetland Consulting, Inc.) November 7, 2006.
2. Wetland "B" is an isolated 9,113 square foot scrub-shrub wetland. Vegetation within the Wetland B consists mainly of one black cotton wood, red-osier dogwood, sitka willow, red alder, hardhack, softrush, and creeping butter cup.
3. Wetland "B" is classified as an important wetland, due to its size (less than 1 acre), presence of two vegetative classes, and the fact that it is not located in a stream corridor.

4. Pursuant to DMMC § 18.86.070 "Important" wetlands require a 35 foot buffer measured from the wetland edge.
5. Fragmentation of the wetland occurred as early as 1962 when the school and church were built on the adjacent property (Tax Parcel 2822049025).
6. Further impact to the wetland and corresponding buffer along the easterly property line was due to the development of Kent's Regional Detention Facility in approximately 2003.
7. The applicant will constructed a replacement wetland around wetland "A" at a ratio of 1:1

AGENDA ITEM

BUSINESS OF THE CITY COUNCIL City of Des Moines, WA

SUBJECT: Agreement with Moffatt-Nichol to Provide Design and Engineering Services for the first phase of the Bulkhead Replacement Project.

ATTACHMENTS:

1. Agreement Between the City of Des Moines and Moffatt-Nichols, including scope of work and budget.

FOR AGENDA OF: June 14, 2007
DEPT. OF ORIGIN: Marina

DATE SUBMITTED:

CLEARANCES:

[X] Marina

[X] Legal *PB*

APPROVED BY CITY MANAGER

FOR SUBMITTAL: *MA* *for T.P.*

A. Purpose & Recommendation

The purpose of this Council Agenda Item is to seek the Council's authorization to proceed with the design, engineering and permitting of the first phase of the Bulkhead Replacement Project that would replace the bulkhead in front of the Marina Office, (from the dry shed launch deck to the north end of the public launch deck). Because of the difficulty of replacing the bulkhead in this area and the fact that this area will be "high value" space that includes some commercial development, the staff is recommending that the design, engineering and permitting be undertaken in two phases. The first phase would be a "concept refinement" effort that would involve just four members of the design team, the engineers, the architects, the landscape architects and the surveyor. The goal of the first phase would be to clearly define how this space would look, how vehicle and pedestrian traffic would work, where access to the guest moorage area would be located and how a new commercial development would be integrated into the space. The second phase would include the final engineering, final architectural design, final traffic and parking plan and all of the geotechnical, environmental and permitting work. The staff is requesting the Council's authorization for the first phase only. The proposed budget for this "concept refinement" phase is \$41,400. The estimated budget for the entire design, engineering and permitting process is about \$175,000.

Recommended Motion

"I move that the City Council approve the agreement with Moffatt & Nichol for engineering, design and permitting services for the Bulkhead Replacement Project, Phase 1, and authorize the City Manager to sign the agreement, substantially in the form as submitted."

B. Background

At the Municipal Facilities Committee meeting on April 20th, 2007, the staff informed the Committee members that they were starting the first phase of the Bulkhead Replacement Project. The Harbormaster told the Committee that the staff was planning to divide the design and engineering of the project into two parts. The first part would be a “concept refinement” process that would involve the engineer, the architect and the landscape architect. The Harbormaster told the committee that he felt that this approach was necessary because the first phase of bulkhead replacement involved the area in front of and to the north of the Marina office. The Harbormaster went on to say that the area being discussed was one of the “high value” spaces in the new configuration of the Marina where a new commercial space was to be located and where pedestrian and vehicle traffic would be concentrated. The Harbormaster told the committee that, in his opinion, it was critical to determine what this area was going to look like and how traffic and parking were going to work, before extensive design work on the bulkhead was started. Because a new restaurant is the planned use for the new commercial space, the Committee asked the staff to bring in some people with restaurant expertise to give the Committee some information about what would be required for a successful restaurant operation in that location.

On May 18th, the Municipal Facilities Committee met with the staff and some members of the management team of Anthony’s Restaurants. The staff from Anthony’s was able to give the Committee some valuable information about the design and operation of a successful restaurant. At the conclusion of the discussion the staff told the Committee that they would prepare the agenda item for the “concept refinement” process and take it to the full Council.

C. Discussion

The Staff intends to proceed with a wall alignment that closely follows the existing bulkhead and fully define the site plan for this preferred alignment. Using the information that was developed for the “DRAFT Preliminary Design Report” and the Master Plan prepared by the Moffatt & Nichol team in 2004, and in 2007, respectively, code issues will be revisited and requirements will be updated for the preferred wall alignment and the associated upland improvements, which include parking, landscaping, lighting, storm water, and ADA compliance. Moffatt & Nichol (M&N) has re-assembled a portion of the Preliminary Design Report team to revisit and update project opportunities and constraints for the bulkhead replacement project. The other team members included in this effort will be:

- Makers Architecture and Planning - planning and hardscape (see Attachment A for Scope)
- Worthy and Associates – landscape (see Attachment B for Scope)
- Pacific Geomatic Services – surveying

Scope of Work

Task 1. Concept Plans

- a. Code Review Pre-Application: Use available documents to review and update code requirements.
- b. Develop Preliminary Site Plan for Discussion Purposes: Using the Master Plan Site Plan for the initial layout, we will prepare a site plan that will illustrate the new bulkhead alignment,

gangway location(s), existing docks to remain, an allowance for a future commercial building area, identify parking areas to be affected. Since the guest moorage dock facility will remain, it will be important to locate these structures accurately so that layouts reflect improvements needed as well as identifies potential impacts. We propose using Pacific Geomatic Survey (PGS) for supplemental survey work to locate the existing in-water structures.

c. Meetings with City Staff: Meet with City staff to discuss the code requirements and issues (allow up to 3 meetings).

d. Team Working Session: Using the updated information and input from meetings with City Staff and , the project team would participate in a working session that will bring the planning/landscaping/engineering/environmental together to summarize the opportunities and constraints and

e. Prepare Preliminary Site Plan and Estimate of Construction Costs. Efforts will be made to locate the wall such that areas of potential environmental impact are minimized. Quantities will be developed in order to estimate the construction costs for the site plan.

f. Meeting with City Municipal Facilities Committee to present the plan.

Alternatives

Alternative No. 1. The Council may approve the agreement as submitted.

Alternative No. 2. The Council may approve the agreement with additional conditions and/or requirements.

Alternative No. 3 The Council may decline to approve the agreement.

C. Financial Impact

The budget for the “concept refinement” phase is \$41,400, which would be included in the estimate for the total effort to design, engineer and permit the project. That estimate is \$176,364. This project was approved as part of the Updated Marina Master Plan and the 2007 CIP. There is money available in the Marina’s capital fund to pay for the engineering, design and permitting of the first phase of the Bulkhead Replacement Project, but funding the actual construction is dependant on another bond issue for the Marina.

D. Recommendation

The staff recommends that the Council approve the agreement and direct staff to proceed with the first phase of the Bulkhead Replacement Project.

E. Concurrence

The legal Department has approved the agreement as to form.

**CONTRACT FOR PROFESSIONAL SERVICES
BETWEEN THE CITY OF DES MOINES AND MOFFATT & NICHOL ENGINEERS**

THIS CONTRACT is made and entered into this ____th day of June 2007, by and between the CITY OF DES MOINES, Washington, hereinafter called the "City", and MOFFATT & NICHOL, ENGINEERS, hereinafter called the "Consultant".

WHEREAS, the City has requested assistance in providing professional services for the FIRST PHASE OF THE BULKHEAD REPLACEMENT PROJECT, hereinafter called the "Project", including but not limited to charges for, payments received by, and work products prepared by Moffatt & Nichol Engineers, the firm that contracted with the City to serve as "Consultant" on the Project; and

WHEREAS, Consultant has agreed to provide professional services and is qualified to provide and perform the services described in this Agreement;

THEREFORE, in consideration of the mutual promises and covenants herein contained, to be kept, performed, and fulfilled by the parties, and other good and valuable consideration, it is mutually agreed as follows:

1. **Scope of Service.** The Consultant shall provide the following services identified in the Des Moines Marina Bulkhead Replacement Project – concept Refinement – Proposal for Professional Services, which is attached to this document as "Exhibit A" and shall be considered part of this contract.

All work is to be done in accordance with City of Des Moines, County and State laws, which are by this reference incorporated herein and made part hereof, and Consultant shall perform any additions, as negotiated, to the work provided under this Contract and every part thereof.

2. **Consultant's Obligations.** That all labor, materials, tools, software, equipment, utilities, services, and all other things necessary or required in the satisfactory performance of the work shall be furnished by the Consultant and the Contract performed and completed under the supervision of and subject to the approval of the City or its authorized representatives.

3. **Ownership and Use of Records and Documents.** Consultant shall provide the City with IBM compatible, compact disc copies of all original text documents and reports using Microsoft Word, drawings and design documents using AutoCAD and cost estimates using Microsoft Excel developed under this Agreement, which shall belong to and become the property of the City. All written information submitted by the City to the Consultant in connection with the services performed by the Consultant under this Agreement will be safeguarded by the Consultant to at least the same extent as the Consultant safeguards like information relating to its own business. If such information is publicly available or is already in Consultant's possession or known to it, or is rightfully obtained by the Consultant from third parties, Consultant shall bear no responsibility for its disclosure, inadvertent, or otherwise.

All data, documents, and files created by Consultant under this Agreement may be stored at the Consultant's office in Seattle, Washington. Consultant shall make such data, documents, and files available for review by the City upon its request at all reasonable times for the purpose of editing, modifying, and updating as necessary until such time as the City is capable of storing such information in

the City's offices. Duplicate copies of this information shall be provided to the City upon its request, and at reasonable cost. Only those documents required under signature and seal of the engineer of record will be available for bid and construction.

Any use or reuse of the documents, data, and files created by Consultant for the City on this project by anyone other than Consultant on any other project shall be without liability or legal exposure to Consultant.

4. Compensation. In consideration for the complete and faithful performance of the Contract, the Consultant shall be paid as follows: Excepting reimbursables, additional services pre-approved by the City, and/or changes and modifications necessitated or agreed upon as provided in the Contract, the City Council has authorized payment to Consultant of \$41,400.

The Consultant shall submit monthly invoices in the amounts set forth in the fee summary table found in Exhibit A for tasks accomplished, in a form as directed by the City's authorized representative(s). Invoices shall be paid within thirty (30) days of receipt. Invoices left unpaid beyond 30 days of receipt of invoice shall be subject to a monthly interest rate of 1 %. Reimbursables, standard hourly rates, and additional services shall be as outlined in the fee proposal.

5. Term. The term of this Contract shall be ninety, (90), days from the date of execution. This Contract may be extended upon written agreement of both parties. Within 10 days of execution of this contract the City and Consultant will jointly establish and abide by a schedule, under which the work and services described in this Contract will be performed and completed. It is the responsibility of both City and Consultant to maintain the schedule, unless changes are agreed upon by both parties. This Contract may be terminated by the City on thirty (30) days notice for the Consultant's failure to perform services outlined in the schedule.

6. Performance Standards. Consultant's services, and all duties incidental or necessary thereto, shall be conducted and performed diligently and competently and in accordance with professional standards of conduct and performance.

7. Record Keeping. All records or papers of any sort relating to the City and the project will at all times be the property of the City and shall be surrendered to the City upon demand. All information concerning the City and said project, which is not otherwise a matter of public record or required by law to be made public, is confidential, and the Consultant will not, in whole or in part, now or at any time, disclose that information without the express written consent of the City Attorney.

8. Assignment. This Contract may not be assigned or otherwise transferred by either party hereto.

9. Modification. No change, alteration, modification, or addition to this Contract will be effective unless it is in writing and properly signed by both parties.

10. Independent Consultant. The services provided by the Consultant under this Contract are provided as an independent Consultant. Nothing in this Contract shall be considered to create the relationship of employer and employee between the parties. Neither the Consultant nor any employee of the Consultant shall be entitled to any benefits accorded City employees by virtue of the services provided under this Contract. The City will not be responsible for withholding or otherwise deducting federal income tax or social security payments, or contributing to the State Industrial Insurance Program, or otherwise assuming the duties of an employer with respect to the Consultant.

11. **Indemnification / Hold Harmless.** Consultant shall indemnify and hold the City, officials, employees and volunteers harmless from any and all damages, including attorney fees, caused by the negligent acts, errors or omissions of the Consultant in performance of the professional services of this Agreement. The City shall hold the Consultant harmless from any and all damages caused by the negligence of the City.

12. **Insurance.** The Consultant shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Consultant, its agents, representatives, or employees.

a) Minimum Scope of Insurance

Consultant shall obtain insurance of the types described below:

1. Automobile Liability insurance covering all owned, non-owned, hired and leased vehicles. Coverage shall be written on the Insurance Services Office (ISO) form CA 00 01 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage.
2. Commercial General Liability insurance shall be written on ISO occurrence form CG 00 01 and shall cover liability arising from premises, operations, independent contractors personal injury and advertising injury. The City shall be named as an insured under the Contractor's Commercial General Liability insurance policy with respect to the work performed for the City.
3. Workers' Compensation coverage required by the Industrial Insurance laws of the state of Washington.
4. Professional Liability insurance appropriate to the Consultant's profession.

b) Minimum Amount of Insurance

Consultant shall maintain the following insurance limits:

1. Automobile Liability insurance with minimum combined single limit for bodily injury and property damage of \$1,000,000 per accident.
2. Commercial General Liability insurance shall be written with limits no less than \$1,000,000 each occurrence, \$2,000,000 general aggregate.
3. Professional Liability insurance shall be written with limits no less than \$100,000 per claim and \$1,000,000 policy aggregate limit.

c) Other Insurance Provisions

The insurance policies are to contain, or be endorsed to contain, the following provisions for Automobile Liability, Professional Liability and Commercial General Liability insurance:

1. The Consultant's insurance coverage shall be primary insurance as respect the City. Any insurance, self-insurance, or insurance pool coverage maintained by the City shall be excess of the Consultant's insurance and shall not contribute with it.
2. The Consultants Insurance shall be endorsed to state that coverage shall not be cancelled by either party, except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.

d) Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best rating of not less than A:VII.

e) Verification of Coverage

Consultant shall furnish the City with original certificates and a copy of the amendatory endorsements, including but not necessarily limited to the additional insured endorsement, evidencing the insurance requirements of the Consultant before commencement of the work.

13. *Dispute Resolution Procedures.*

a) ***Mediation/Arbitration Clause.*** If a dispute arises from or relates to this Contract or the breach thereof and if the dispute cannot be resolved through direct discussions, the parties agree to endeavor first to settle the dispute in an amicable manner by mediation administered by a mediator under the American Arbitration Association's Rules before resorting to arbitration. The mediator may be selected by agreement of the parties or through the American Arbitration Association. Following mediation, any unresolved controversy or claim arising from or relating to this Contract or breach thereof shall be settled through arbitration which shall be conducted under the American Arbitration Association's Arbitration Rules. The arbitrator may be selected by agreement of the parties or through the American Arbitration Association. All fees and expenses for mediation or arbitration shall be borne by the parties equally. However, each party shall bear the expense of its own counsel, experts, witnesses, and preparation and presentation of evidence.

b) ***Venue, Applicable Law and Personal Jurisdiction.*** All questions related to this Contract shall be resolved under the laws of the State of Washington. In the event that either party deems it necessary to institute legal action arising from this Contract, such action shall be instituted in the King

County Superior Court. The parties each consent to the personal jurisdiction of such court. Except as otherwise provided by law, it is expressly understood that neither party can institute any legal action against the other based on this Contract until the parties have exhausted the mediation and arbitration procedures required by the previous paragraph.

14. **Severability.** If any term, provision, covenant, or condition of this Contract is held by a court of competitive jurisdiction to be invalid, void, or unenforceable, the remainder of the provisions hereof shall remain in full force and effect and shall in no way be affected, impaired, or invalidated as a result of such decision.

15. **Waiver.** The waiver by either party of any breach of any term, condition, or provision of the Contract shall not be deemed a waiver of such term, condition, or provision or any subsequent breach of the same or any condition or provision of this Contract.

16. **Captions.** The captions used herein are for convenience only and are not a part of this Contract and do not in any way limit or amplify the terms and provisions hereof.

17. **Time of Essence.** Time is of the essence for each and all of the terms, covenants, and conditions of this Contract.

18. **Concurrent Originals.** This Contract may be signed in counterpart originals.

19. **Ratification and Confirmation.** Any acts consistent with the authority and prior to the effective date of this Contract are hereby ratified and confirmed.

IN WITNESS THEREOF, four (4) identical counterparts of this Contract, each of which shall be deemed an original thereof, have been duly executed by the parties herein named, on the day and year first above written.

CITY OF DES MOINES

By _____
Its _____

22307 Dock Ave. South

Des Moines, WA 98198

Dated _____

MOFFATT & NICHOL ENGINEERS

By _____
Its _____

710 Second Ave, Suite 720

Seattle, WA 98104

Dated _____

APPROVED AS TO FORM:

City Attorney



710 Second Avenue
Suite 720
Seattle, Washington 98104

(206) 622-0222
Fax (206) 622-4764

April 6, 2007

Joe Dusenbury, Harbormaster
City of Des Moines
22307 Dock Avenue South
Des Moines, WA 98198

Subject: Des Moines Marina Replace Bulkhead Project – Concept Refinement
Proposal for Professional Services
M&N File No. 5350

Dear Joe:

The City of Des Moines will be replacing the existing timber bulkhead at the Des Moines marina in a phased approach as described in the recently updated Marina Master Plan. As the bulkhead is replaced, other upland improvements along the shoreline will also be completed. Improvements will include:

- A raised sidewalk and landscaping for a waterfront promenade
- Reconfigured of parking areas
- Lighting Improvements

BACKGROUND

The updated master plan identifies two alignments for the bulkhead. One would closely follow the existing wall alignment. A slight deviation of the wall alignment would occur fronting the future development pad located just north of the harbormaster building. The guest moorage basin would remain largely the same. The second alignment would allow for the construction of an expanded guest moorage basin by excavating approximately one acre of upland area from the north parking area.

The City intends to proceed with the first wall alignment that follows the existing bulkhead. We propose to more fully define the stie plan for this preferred alignment. Using the information that was developed for the "DRAFT Preliminary Design Report" and the Master Plan prepared by the Moffatt & Nichol team in 2004, and in 2007, respectively, code issues will be revisited and requirements will be updated for this wall alignment and the associated upland improvements, which include parking, landscaping, lighting, storm water, and ADA compliance.

Moffatt & Nichol (M&N) has re-assembled a portion of the Preliminary Design Report team to re-visit and update project opportunities and constraints for the bulkhead replacement project. The other team members included in this effort will be:

- Makers Architecture and Planning - planning and hardscape (see Attachment A for Scope)
- Worthy and Associates – landscape (see Attachment B for Scope)
- Pacific Geomatic Services – surveying

SCOPE OF WORK

We propose the following services:

Task 1. Concept Plans

- a. Code Review Pre-Application: Use available documents to review and update code requirements.
- b. Develop Preliminary Site Plan for Discussion Purposes: Using the Master Plan Site Plan for the initial layout, we will prepare a site plan that will illustrate the new bulkhead alignment, gangway location(s), existing docks to remain, an allowance for a future commercial building area, identify parking areas to be affected. Since the guest moorage dock facility will remain, it will be important to locate these structures accurately so that layouts reflect improvements needed as well as identifies potential impacts. We propose using Pacific Geomatic Survey (PGS) for supplemental survey work to locate the existing in-water structures.
- c. Meetings with City Staff: Meet with City staff to discuss the code requirements and issues (allow up to 3 meetings).
- d. Team Working Session: Using the updated information and input from meetings with City Staff and , the project team would participate in a working session that will bring the planning/landscaping/engineering/environmental together to summarize the opportunities and constraints and
- e. Prepare Preliminary Site Plan and Estimate of Construction Costs. Efforts will be made to locate the wall such that areas of potential environmental impact are minimized. Quantities will be developed in order to estimate the construction costs for the site plan.
- f. Meeting with City Municipal Facilities Committee to present the plan.

SCHEDULE AND BUDGET

We propose to complete this work within forty-five (45) calendar days from receipt of Notice-to-Proceed from the City.

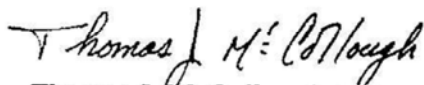


We estimate that the fee for this work will be approximately \$41,400. The supporting details for the proposed fee are attached (see Attachment C).

Please call Mike Hemphill if you have any questions or would like to discuss this proposal further. Our team has enjoyed working with the City to position the marina for future opportunities and we look forward to helping the City with implementing the master plan.

Sincerely,

MOFFATT & NICHOL


Thomas J. McCollough, P.E.
Vice President

Attachments

- A – Makers Scope of Services, dated April 5, 2007
- B – Worthy Scope of Services, dated April 4, 2007
- C – Fee Proposal



make (māk) v. 1 to bring into being by shaping or altering 2 to form in the mind, a judgment or plan 3 to put together by combining parts 4 to build, construct, formulate, devise, create 5 to prepare for use; arrange 6 to cause to happen

April 5, 2007

**Re: Des Moines Marina Bulkhead Replacement Project
Scoping Phase Fee Proposal**

Dear Ms. Carpenter:

MAKERS is pleased to submit our fee proposal of \$8,190 for the scoping phase of the Marina Bulkhead Replacement Project. MAKERS overall project responsibilities will be for the upland hardscape elements and the general site planning, which will include vehicular circulation and parking, general public access and any building siting. A primary design feature will be the waterfront promenade. MAKERS will have primary responsibility for this element including the overall character, pavement, railing, lighting, furniture, and signage (if any).

MAKERS efforts within this phase will begin with a review of the Draft Preliminary Design Report prepared in June 2004 for the Guest Moorage project and relevant code documents. MAKERS will attend meetings with City staff and Council Facility Committee and prepare graphics illustrating conceptual designs for these discussions.

Sincerely,

Stefani Lakey
Partner

Document2

LABOR SUMMARY

DETAILED COSTS BREAKDOWN										
COMPANY: MAKERS						DATE: 4/2/2007				
Project: Des Moines Marina Bulkhead Replacement						CONTRACT NO.:				
PHASE ORDER NO & TITLE: 1 CONCEPT REFINEMENT										
TASK NO.	DETAILED DESCRIPTION OF TASK	Partner	Architect	Designer				TYPIST/ADMIN ASSISTANT	TOTAL HOURS	TOTAL AMOUNT
a	Review Code Requirements		12	6					18	\$2,070
b	Develop Preliminary Site Plan for Discussion Purposes		12	18					30	\$2,970
c	Meetings (allow 3) with City Staff		9	3					12	\$1,440
d	Prepare Refined Site Plan (for Basis of Final Design)		6	12					18	\$1,710
									0	\$0
TOTAL HOURS		0	39	39	0	0	0	0	78	\$8,190
RATE		\$135.00	\$135.00	\$75.00	\$0.00	\$0.00	\$0.00	\$0.00		
DIRECT LABOR AMOUNT		\$0	\$5,265	\$2,925	\$0	\$0	\$0	\$0	\$8,190	
TOTAL DIRECT EXPENSES (No Mark up)									\$0	
TOTAL PROJECT AMOUNT									\$8,190	

WORTHY AND ASSOCIATES, LLC

Landscape Architecture • Park and Recreation Design • Planning

April 4, 2007

Mike Hemphill, P.E., Senior Project Manager
Moffatt & Nichol Engineers
710 Second Avenue Suite 720
Seattle, WA 98104

**Regarding: Des Moines Marina
Expanded Bulkhead Replacement - Phase I
Scope of Services 2007
W&A 07-03**

Dear Mike:

Per our March 30 meeting and discussions with you and Emy Carpenter from Moffatt & Nichol and Stefani Wildhaber-Lakey with MAKERS, plus phone communication with Joe Dusenbury, Port of Des Moines, I have prepared a fee proposal for the review of you and the Port. Since you have your own standard contract language, this scope and fee proposal could form an exhibit of attachment.

The extent of work is described below and the site planning goals are contained in the design report prepared by MAKERS titled "Marina Master Plan," reviewed by the Port Director and Commissioners.

Project Scope Areas:

Selected by the Port for further study and conceptual design are the following project areas identified in the design report:

Future Restaurant Area and Improvements to Harbor Master Grounds and Parking:

1. Participate in concept meeting with Moffatt & Nichol and MAKERS.
2. Provide design for landscape plantings with consideration of code compliance.

North Marina Guest Dock and Promenade:

1. Using MAKERS concept design for public access and seating areas, provide concept design for landscape plantings.

Consultant Scope of Services:

Worthy and Associates LLC Landscape Architects will perform the following services:

Develop landscape concept plan from Owner furnished record drawing that shows existing and new landscape areas to be redesigned and refurbished.

Project Meetings: Worthy and Associates will attend up to three (3) meetings total, including start-up and Team/City meetings.

Project Task Breakdown: See Exhibit "B" for detailed task / time allotment.

Compensation:

Consultant shall submit a monthly statement pursuant to the fee structure detailed in Exhibit B.

Time and materials for Phase 1 not to exceed: **\$5,447.00**

Term:

The agreement shall become effective upon signature by the Owner and Consultant. Work performed pursuant to the Scope of Work shall commence following a notice to proceed and be completed by June, 2007.

Sincerely,

Steve Worthy, ASLA

Stephen G. Worthy, ASLA, Manager
WORTHY AND ASSOCIATES, LLC

Attachments: Exhibit B- Project Task Breakdown

WORTHY AND ASSOCIATES

PROJECT TASK BREAKDOWN

PROJECT: Des Moines Guest Moorage
Project
Manager: Steve Worthy, ASLA

EXHIBIT "B"

		Principal / Landscape Architect	Landscape Designer / Cadd
Task	Rate	\$ 105	\$ 68
Phase 1 Concept Refinement			
1.01 Kick-off Meeting			
1.	(1) Kick-off at MAKERS	2	2
2.	Project Start-up	4	6
1.02 Code Review Pre-Application Meeting with City			
3		3	3
1.03 Concept Design			
4.	(1) Develop Concept for Project Scope Areas	6	40
5.	(1) Team Meeting with City Staff	3	0
Total Hours		18	51
Total Dollars		\$ 1,890.00	\$ 3,468.00
Labor Total			\$5,358.00
Reimbursables: Plots, Copies, and Mileage			\$ 89.00
W&A Project Budget			\$5,447.00

LABOR SUMMARY

DETAILED COSTS BREAKDOWN										
COMPANY: Moffatt & Nichol				Project: Des Moines Marina Bulkhead Replacement				DATE: 4/5/2007		
PHASE ORDER NO & TITLE: 1 CONCEPT PLANNING				CONTRACT NO.:						
TASK NO.	DETAILED DESCRIPTION OF TASK	SUPERVISORY ENGINEER	PROJECT MANAGER	SENIOR ENGINEER	ENGINEER III	ENGINEER I	CADD TECHNICIAN	TYPIST/ADMIN ASSISTANT	TOTAL HOURS	TOTAL AMOUNT
a	Code Review		8			8			16	\$2,464
b	Develop Preliminary Site Plan for Discussion Purposes		2		4		8		14	\$1,926
c	Meetings (allow 3) with City Staff		18		18				36	\$6,246
d	Team Working Session		6		6				12	\$2,082
e	Preliminary Site Plan & Cost Estimate		8		16	16			40	\$6,184
f	Meeting with City Municipal Facilities Committee		6						6	\$1,074
g	Project Management		20						20	\$3,580
TOTAL HOURS		0	68	0	44	24	8	0	144	\$23,556
RATE		\$195.00	\$179.00	\$179.00	\$168.00	\$129.00	\$112.00	\$83.00		
DIRECT LABOR AMOUNT		\$0	\$12,172	\$0	\$7,392	\$3,096	\$896	\$0	\$23,556	
TOTAL DIRECT EXPENSES (No Mark up)										
TOTAL SUBCONSULTANT COSTS		Fee		Markup	Total Cost					\$17,861
Makers		\$	8,190.00	10%	\$ 9,009.00					
Worthy & Associates		\$	5,447.00	10%	\$ 5,991.70					
Pacific Geomatic Services		\$	2,600.00	10%	\$ 2,860.00					
TOTAL PROJECT AMOUNT									\$41,417	

AGENDA ITEM

BUSINESS OF THE CITY COUNCIL City of Des Moines, WA

SUBJECT: Resolution to the City of SeaTac on
Joint Transportation and Land Use Planning

ATTACHMENTS:

1: Draft Resolution 07-121

FOR AGENDA OF: June 14, 2007

DEPT. OF ORIGIN: Planning, Building & Public
Works

DATE SUBMITTED: June 8, 2007

CLEARANCES:

[X] Planning, Building & Public Works *HA*
[X] Legal *JB*

APPROVED BY CITY MANAGER
FOR SUBMITTAL: *HA for T.P.*

Purpose and Recommendation

The purpose of this agenda item is to seek Council's approval on a Resolution to the City of SeaTac on the joint transportation and land use planning for development of the 24th/28th Avenue South Corridor road way improvements and other transportation and planning-related improvements associated with development of the Des Moines Creek Business Park and other projects in both Des Moines and SeaTac along this and the International Boulevard/Pacific Highway South corridor. City Council directed staff to prepare such a resolution at its June 7, 2007 Study Session.

Suggested Motion:

"I move to approve draft resolution 07-121 expressing the Council's intent for the City staff and City Council to work cooperatively with the City of SeaTac to coordinate transportation and land use planning and development efforts in the 24th/28th Avenue South and International Boulevard/Pacific Highway South (SR 99) corridors."

Background

The City of Des Moines (City) and the Port of Seattle (Port) are partnering to bring economic development to the City and region through development of the Des Moines Creek Business Park (DMCBP) site. The DMCBP abuts Port-owned Noise Remedy Program property in SeaTac to the north zoned Aviation Commercial, and is across 24th Avenue South from Aviation Business Use-zoned property currently being used for single family homes.

Discussion

Both cities are anticipating redevelopment of commercial and residential properties in these corridors. The Christian Faith Center in SeaTac has been sold to ProLogis, a company planning to develop a new warehouse complex. Former and existing nursery businesses north of South 216th Street are sought-after properties for new retail development. Single family homes along 24th Avenue South in both Des Moines and SeaTac are in non-residential zoned areas. Bus Rapid Transit improvements along SR99 were approved by voters last November and SR509 and Sound Transit 2 Link Light Rail improvements are being recommended to voters in November 2007.

The City of SeaTac has asked Des Moines to enter into a Local Improvement District (LID) to complete the 24th/28th Avenue Corridor. The City believes that there may be other options to also consider given timing considerations affecting the development of the Des Moines Creek Business Park, challenges of coordinating a cross-jurisdictional LID, and calculating and assessing special benefits to LID-affected properties.

The City also desires to consider the larger geographic land use and comprehensive transportation context, especially how properties along SR 99 in both SeaTac and Des Moines are affected, how South 208th Street is redeveloped, how Bus Rapid Transit and Link Light Rail are provided for along SR99, and how SR 509 will be fully developed.

It will also be important to address how Des Moines intends to address the 24th/28th Avenue Corridor and other development in these corridors in the 2nd Development Agreement with the Port of Seattle on the Des Moines Creek Business Park.

Alternatives

None presented.

Financial Impact

None

Recommendation

Staff recommends that City Council adopt the draft resolution.

DRAFT RESOLUTION NO. 07-121

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DES MOINES, WASHINGTON, expressing the Council's intent for the City staff and City Council to work cooperatively with the City of SeaTac to coordinate transportation and land use planning and development efforts in the 24/28th Avenue South, and International Boulevard/Pacific Highway South (SR 99) corridors. *DK kept like these amendments*

WHEREAS, the Cities of Des Moines and SeaTac (Cities) anticipate significant development along SR 99, *DK, SR 99* as well as the 24th/28th Avenue South corridor that affects land use, zoning and transportation that will significantly affect each City and its residents, and

WHEREAS, significant regional public transportation improvements have been and are expected to be approved in the future ~~for these corridors including bus rapid transit and link light rail, and~~ *51*

WHEREAS, significant commercial property redevelopment is currently and will be occurring in each City within these corridors, necessitating the need for coordinated planning and environmental review, and

WHEREAS, the Cities of Des Moines and SeaTac express their respective intent to work cooperatively to provide for development of the 24/28th Avenue South Corridor Project ("Corridor Project") in a way to meet the development needs and timetables of each City, and

transportation access WHEREAS, the Corridor Project crosses the boundaries of Des Moines and SeaTac and both Cities seek to work cooperatively to provide ~~freight~~ *freight vehicle access* mobility, utilities and aesthetic improvements along the corridor to support these needs when they occur, and *51 Motor DK and all per*

WHEREAS, the Cities may recognize some economies in working cooperatively to provide for a process that is consistent for all property owners in the benefit area, and

consider
WHEREAS, the Cities further agree that to preserve the option of using one or more Local Improvement District (LID) as a viable funding source, each City agrees that as development or redevelopment occurs in the respective City, that the respective City will pursue a "no protest" LID Agreement from the property owner for those properties in the proposed benefit area to facilitate this option should the City elect to form such an LID in the future, and

WHEREAS, the Cities agree to jointly pursue grant opportunities through State and Federal sources as a supplemental funding source, and

WHEREAS, the Cities further agree that should an LID become a part of a funding package to construct the final improvements in the corridor, both Cities agree to consider cooperating to make the construction in the two Cities one construction project, with one City named as the lead agency for the project, and establish a process to mutually select the consulting or management firm for the project in order to avoid unnecessary duplication of costs, and efforts, and

WHEREAS, the Cities also agree to consider the impacts that this Corridor Project may have on future Sound Transit Light Rail Corridor and the impacts to this project in its planning; now therefore,

THE CITY COUNCIL OF THE CITY OF DES MOINES RESOLVES AS FOLLOWS:

(1) That the City of Des Moines intends to work cooperatively with the City of SeaTac to coordinate transportation and land use planning and development efforts in the 24th/28th Ave South/SR 99, *DMND, S 210* corridors, including, but not limited to, consideration of one or more interlocal agreements providing for completion of 24th/28th Avenue South, reciprocal assessment of traffic impact fees, coordination of SEPA actions, redevelopment of commercial and residential properties, redevelopment of South 208th Street, transit-oriented Bus Rapid Transit/Link Light Rail development ~~along~~ *along* SR99, and redevelopment of Pacific Ridge.

*DK moved
57 2nd All Ags*

Resolution No. ____
Page 3 of ____

(2) Further, recognizing that time is of the essence, the City commits to working expeditiously on these matters with an aggressive schedule and well defined milestones.

(3) Further, the Council asks for formal quarterly progress updates beginning September 1, 2007.

(4) Further, that the City ^{MAY — amendment issued by DK} will seek to obtain "no protest" LID agreement from property owners in the mutually agreed upon benefit area.

(5) Further, the City Manager is directed to transmit a copy of this resolution to the City of SeaTac.

ADOPTED BY the City Council of the City of Des Moines, Washington this ____ day of June, 2007 and signed in authentication thereof this ____ day of June, 2007.

M A Y O R

APPROVED AS TO FORM:

City Attorney

ATTEST:

City Clerk

R:\Legal Files\2007\07-121 - Transportation Corridor, SeaTac, Res & ILA\07-121, 6-7-07.doc

6/8/07 10:50 AM

A G E N D A I T E M

SUBJECT: Mediterranean Heights
Final Plat Approval Request
City File: LUA 2006-011

AGENDA OF: June 14, 2007

DEPT. OF ORIGIN: P.B.P.W.

DATE SUBMITTED: May 30, 2007

ATTACHMENTS:

1. Prel. Plat Approval (Res. 1022)
2. December 14, 2006 Council Minutes
3. Final Plat Draft Resolution No. 07-120
4. Appraisal Excerpt
5. Proposed Final Plat

CLEARANCES:

[X] PBPW

[X] LEGAL

APPROVED BY THE CITY MANAGER
FOR SUBMITTAL

Purpose and Recommendation:

To provide Council with information related to the subdivision entitled "Mediterranean Heights" enabling it to take action on the final plat development application. Staff recommends that the Council approve the proposed final plat using the following motion.

Motion: "I move to adopt Draft Resolution No. 07-120 approving the final plat of Mediterranean Heights, City File No. LUA 2006-011; Applicant: John Ayar."

Background:

On December 14, 2006, the City Council approved Resolution 1022 (Attachment 1) which approved a preliminary plat entitled Mediterranean Heights. This approval enabled the applicant to make "significant changes" to a subdivision and preliminary plat that was already approved by the City Council five years earlier in 2001. The primary change to the preliminary plat application was to delete park space within the plat and replace it with an additional residential building site. Council approval of this amended preliminary plat design allowed for the creation of 12 new single family residential lots on a 3.5 acre site located at the 1200 block of South 272nd Street.

The development of the site and infrastructure installation associated with the Mediterranean Heights subdivision has been a unique experience which, unfortunately, was marked by significant delays in completing plat improvements. The original preliminary plat application for this site was submitted over 5 years ago. The Des Moines City Council approved the original preliminary plat on October 25, 2001 under Resolution 917. Mr. Ayar did outsource some components of site development, but remained very involved and "hands on" in most every

aspect of site development. Development took place in small increments which simply took longer for all the improvements to be completed. Mr. Ayar also involved himself in another construction activity (the construction of a large residence on the site) before the plat was finalized. This additional construction project seemed to slow some of the plat construction work down as the applicant's focus shifted back and forth from installing plat improvements to constructing the home. Work also slowed down because city administration and the applicant, on certain occasions, had disputes over some of the improvements that were performed. Of course, these issues have now been resolved, but the process to reconcile the issues took a lot of energy and time. Examples of these issues included: retaining wall design deviations and questions about the structural integrity of the wall, fill and elevated planters located in the right-of-way, and sewer trunk line easement widths for future maintenance.

After five years, site development has progressed to the point where administration believes that plat improvements are substantially complete. Regular city inspections of the site reveal that all work has been completed to the city's satisfaction, except the following items:

- Setting of survey monuments within the street
- Installation of final asphalt lift for the internal road
- General site maintenance and vegetation control
- Additional landscape work, monitoring, and restoration of "pea patch" area to wetland buffer with appropriate vegetation
- Install gravel access for pond and vault
- Miscellaneous hardware changes, adjustments, and general maintenance for certain SWM facilities

Discussion:

City Council review of applications for final plats is required pursuant to DMMC 17.16.230. Should Council approve the proposed final plat, it will allow Mediterranean Heights to be recorded with the King County Records Office and will enable the applicant to file for building permits on the lots within the subdivision or sell individual lots. Council approval of the proposed final plat requires that it make three findings:

1. The plat is consistent with the approved preliminary subdivision, except for minor deviations specified in the city subdivision code.
2. The plat is consistent with the provisions of Title 17 DMMC (Des Moines Subdivision Code) and Chapter 58.17 RCW (The State Subdivision Map Act).
3. All required improvements are installed or securities to cover the cost of installation are submitted in accordance with DMMC 17.40.090

Administration has reviewed the proposed final plat map application (Attachment 5) against the above required findings. The application is consistent with the cited local and state statutes. Also, the proposed final plat is substantially consistent with the most recently approved Council approved preliminary plat design. Again, the primary difference between the most recently preliminary plat approval by Council and the prior preliminary plat design that was initiated 5 years ago was the removal of the public park space and replacement with a twelfth residential lot. This is allowed to be done pursuant to the DMMC provided park in-lieu fees are paid at the time

of final plat. The applicant has paid \$48,783 as in-lieu fees for park purposes. This amount was based on a market value appraisal of the entire site without plat improvements or the home which currently exist on the site. This methodology is consistent with how in-lieu fees have been applied since the inception of this requirement in the city's subdivision code (1992). It also correlates well to what other plats have been charged in the past and the legal basis and limitations on what a city can collect in-lieu fees for park purposes.

Finally, with the exception of the few items previously noted, all required improvements have been installed. The new road (South 273rd Place) has been constructed along with related curb, gutter, sidewalk and street light improvements. These improvements also extend and wrap around the frontage of South 272nd Street and Marine View Drive. All utilities and a city approved storm detention system (pond and vault) are operational. The city surface water division and right-of-way inspector have approved all work performed. At the time this agenda item was prepared, the applicant has a cash bond of \$200,000.00 deposited with the city. This bond is now several years old and was originally intended to cover many of the improvements that have already been installed and inspected. Staff will be refunding a portion of this bond in the near future to account for the work that has been completed. However, staff will retain \$110,000.00 of this bond as performance and maintenance security. This amount should provide ample security to cover the cost of the few lingering improvements previously mentioned. The city's subdivision ordinance provides for posting of securities to complete this type of work.

Alternatives:

The City Council has the following options in determining how to take action of this proposal:

1. Approve the proposed final plat as recommended by staff in Draft Resolution No. 07-120.
2. Approve the proposed final plat but with amendments to Draft Resolution No. 07-120.
3. Do not approve the proposed final plat and either direct staff to prepare findings and a Resolution supporting this decision or continue the review of the final plat to a future date until the items of concern can be remedied.

Financial Impact:

No immediate and direct financial impacts are anticipated other than the in-lieu contribution to the park fund. Approval of the subdivision and subsequent development does have a long term impact on overall assessed valuation of property and corresponding taxes collected as well as collection of traffic impact fees, but these revenues are largely offset by mitigation of project impacts or expenditures for future city services related to residential use of the property.

Recommendation/Conclusion:

Administration recommends that the Council approve the applicant's request for final plat.

Concurrence:

-Planning, Building, Public Works

RESOLUTION NO. 1022

A RESOLUTION OF THE CITY OF DES MOINES, WASHINGTON approving the Mediterranean Heights preliminary subdivision and preliminary plat (hereinafter, Mediterranean Heights project), subject to conditions specified herein; and superseding Resolution No. 917.

WHEREAS, John Ayar, an owner of the real property in the City of Des Moines, filed an application for a preliminary subdivision and preliminary plat of property within an RS-7200 zone, to be known as Mediterranean Heights, and

WHEREAS, an environmental checklist, other environmental documents, and a Determination of Non-Significance issued under the State Environmental Policy Act for a similar subdivision proposal on the subject site was submitted in December 2000 and was adopted by the SEPA responsible official on July 13, 2006, and

WHEREAS, the environmental documents have been available for review with the Mediterranean Heights project application during the review process, and

WHEREAS, the Des Moines Planning Agency reviewed the Mediterranean Heights project at its regular meeting on November 6, 2006, and

WHEREAS, the Des Moines Planning Agency, after review of the Mediterranean Heights project at a public meeting and consideration of the recommendations by administration, recommended approval of the application subject to specific conditions, and

WHEREAS, the City Council, in its public hearing on December 14, 2006, considered the Mediterranean Heights project, the adopted environmental documents, recommendations from the Planning Agency, and recommendations from administration; now therefore,

THE CITY COUNCIL OF THE CITY OF DES MOINES RESOLVES AS FOLLOWS:

Sec. 1. Findings of fact. The findings of fact set forth in Exhibit 1, attached hereto and incorporated by this reference, are adopted in full by the City Council in support of its decision to approve the Mediterranean Heights project subject to specific conditions.

Sec. 2. Decision criteria. The criteria used in making the decision are those required by DMMC 17.16.030(2). The City Council finds that the Mediterranean Heights project is in compliance with the required criteria, as set forth in the findings of fact in Exhibit 1, adopted above.

Sec. 3. Approval subject to conditions. The Mediterranean Heights project is approved subject to the following conditions and modifications:

(1) The preliminary plat shall be consistent with the environmental mitigation agreement in Exhibit 2, attached hereto and incorporated by this reference; except that mitigation items 1, 3, and 6 shall be deleted.

(2) The applicant shall submit an interior streetscape plan for review and approval by the Planning, Building, and Public Works Department. The plan shall require that street trees or equivalent substantial vegetation be installed behind

the sidewalk at a minimum of every twenty-five (25) feet on center.

(3) The applicant shall be required to prepare and submit appropriate legal instruments subject to review and approval by the City Attorney that will establish a Homeowner's Association which shall be required to install and maintain various improvements required as a part of this preliminary subdivision approval. The face of the final plat shall specify common areas and improvements required to be maintained by the association.

(4) The applicant shall terrace any portion of the retaining wall along the west site boundary that exceeds six (6) feet in height.

(5) Approval of this preliminary subdivision under this resolution shall supersede and void Resolution No. 917.

(6) The applicant shall pay in-lieu park fees to the City of Des Moines at the time of filing an application for final plat. The in-lieu fees shall be for both the land value and improvements to construct a park meeting city requirements under DMMC 17.36.150(5) for this subdivision. Land value shall be based on market value based on a real estate appraisal submitted by the applicant.

(7) Proposed Tract "E" shall be removed and is not approved by the City of Des Moines for common garden use. The area within proposed Tract "E" shall be merged into the adjacent Tract "X" which is a natural open space conservation area (wetland). The applicant shall submit a wetland buffer revegetation plan to the City Planning, Building, and Public Works Department for review and approval. Upon City approval of the revegetation plan, the applicant shall construct all improvements and install all plant materials on this plan.

Sec. 4. Compliance with other law. Nothing in this resolution shall be construed as excusing the applicant from compliance with all federal, state, or local statutes, ordinances, or regulations applicable to this subdivision other than as expressly set forth herein.

Sec. 5. Resolution attached to approval documents. A certified copy of this resolution, along with the herein referenced findings of fact, shall be attached to and become a part of the evidence of the preliminary approval of said subdivision and preliminary plat to be delivered to the applicant.

Sec. 6. Distribution of resolution following council action. Certified or conformed copies of this resolution shall be delivered to the following:

(1) City of Des Moines Planning, Building, and Public Works Department;

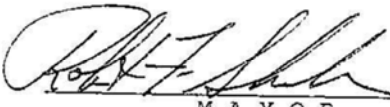
(2) South King Fire and Rescue; and

(3) City Clerk of the City of Des Moines.

Sec 7. Distribution of resolution by Planning Official. Within five days following adoption of this resolution, the Planning Official shall distribute the resolution to the applicant, and to each person who submitted timely written or oral testimony to the City Council for inclusion in the record.

Sec. 8. Reconsideration. A request to reconsider this decision of the City Council may be made by the applicant, or by any person who submitted timely written or oral testimony to the City Council for inclusion in the record. The request for reconsideration, in the form of a letter, shall be delivered to the Planning, Building, and Public Works Department within ten (10) days following the date of adoption of this resolution. The request shall contain a clear reference to the preliminary subdivision to be reconsidered and a statement of the specific factual findings or conclusions of the City Council disputed by the person filing the request for reconsideration. The City Council shall reconsider a decision if the council finds that an error of fact, law, or procedure that is more likely than not to affect the outcome of the decision has been made; or if the person requesting reconsideration is seeking to enter previously unavailable information that is more likely than not to affect the outcome of the decision. The request for reconsideration shall be processed in conformance with City Council rules of procedure, Chapter 4.12 DMMC.

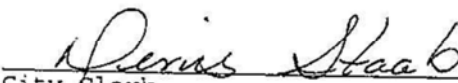
ADOPTED BY the City Council of the City of Des Moines, Washington this 14th day of December 2006 and signed in authentication thereof this 14th day of December, 2006.


MAYOR

APPROVED AS TO FORM:


City Attorney

ATTEST:


City Clerk

RESOLUTION NO. 1022, EXHIBIT 1

FINDINGS OF FACT

DECEMBER 14, 2006

The Des Moines City Council upon review of an application requesting approval of a preliminary subdivision allowing for the subdivision of property into 12 residential lots, and in consideration of information communicated at a public meeting, hereby finds:

1. The Des Moines SEPA Official issued a threshold determination on May 9, 2001 for a 12 lot subdivision on the same site as the newly proposed Mediterranean Heights subdivision. That determination indicated that that proposal would not create significant adverse environmental impacts, provided that mitigation measures are adhered to.
2. On July 13, 2006 the Des Moines SEPA Official adopted previously prepared SEPA documents for the newly proposed design for Mediterranean Heights.
3. The subject site is zoned RS-7200.
4. Development standards for the RS-7200 zone require that lots created by subdivision have a minimum lot width of 60 feet and a minimum lot size of 7,200 square feet.
5. All lots within the proposed subdivision contain a minimum of 7,200 square feet in area and a minimum lot width of 60 feet except proposed lot 12.
6. Proposed lot 12 contains 6,904 square feet, but is able to be "lot averaged" under provisions of the zoning code because the plat contains lots larger than the minimum lot size which can be used to credit lot area to proposed lot 12.
7. The applicant proposes to serve the subdivision with a public street with 50 feet of right-of-way, consistent with City requirements.
8. The applicant proposes to pay park in-lieu fees to fulfill the development's responsibility for providing it's pro rata share of park space.
9. The City Council specified as a condition of approval that park in-lieu fees shall be based on a real estate appraisal to be consistent with requirements of the city's subdivision code.
10. A significant wetland occupies the eastern edge of the site. The wetland is considered a significant wetland because it is greater than or equal to one acre in size and has three or more wetland classes.

11. The applicant proposes to deed 7,666 square feet of open space to the city to preserve the wetland and buffer it from surrounding development.
12. The applicant proposed to construct a common garden area east of proposed Lot 12 and adjoining the proposed drainage and Wetland buffer tracts.
13. A common garden involves the continual use of chemicals and perpetual growing and removal of plants that do not provide for long-term habitat value for the wetland.
14. The area proposed for the common garden is located within a wetland buffer which was historically used and developed as an easement for access and utilities associated with an adjoining single family residence.
15. Alternative access and utility corridors have been provided through more appropriate rights-of-way and tracts within the subdivision which has rendered the need for the easement and its associated improvements useless. It is in the public interest to remove improvements within the easement (and the wetland buffer) and restore the buffer to natural vegetative conditions instead or use as a common garden.
16. The Land Use Map for the Greater Des Moines Comprehensive Plan indicates the subject property as preferred for "SF-Single Family Residential."
17. The proposed subdivision provides for future single family residential home construction which is consistent with the Comprehensive Plan.
18. An updated drainage technical information report (TIR) was submitted to the city Surface Water Management division and demonstrated that the subject development would have adequate provisions for storage and treatment of the projects stormwater runoff.
19. A transportation study prepared for this project indicates that project would generate 13 vehicular trips during the p.m. peak hour. This amount of traffic combined with the manner in which the trips are anticipated to be distributed to the local street system is not expected to present significant impacts to the existing street system.
20. The proposed plat is consistent with the applicable provision of Chapter 17.36 DMMC.
21. The proposed plat is consistent with the applicable provisions of the Comprehensive Plan and other city policies and regulations.
22. The proposed plat provides for adequate provisions for open spaces, drainage ways, rights-of-way, sidewalks, and other planning features that assure safe walking conditions for pedestrians, including students

who walk to and from school, easements, water supplies, sanitary waste, fire protection, power service, parks, play grounds, and schools.

23. The proposed subdivision design will serve the public use and interest and is consistent with the public health, safety, and welfare. The City Council shall be guided by the policy and standards and may exercise the powers and authority set forth in chapter 58.17 RCW, as presently constituted or as may be subsequently amended.
24. The proposed subdivision provides for coordinated development with adjoining properties including, but not limited to, provisions for streets, drainage, and sanitary sewer service which will be required to take into account existing development conditions surrounding the subject property.
25. A homeowner's association is needed to provide for maintenance of common areas within the development.
26. Additional vegetation is needed at the time of development to offset removal of significant trees that will occur through site development.
27. Unique circumstances and conditions exist which warrant not widening the proposed sewer easement beyond 15 feet as proposed.
28. Updating the conditions imposed under the environmental mitigation agreement is necessary to reflect changes made and proposed by the applicant since the original preliminary subdivision was reviewed.
29. The Des Moines Planning Agency reviewed the proposed preliminary subdivision at its regular meeting on November 6, 2006 and voted 5-0 to recommend approval to the City Council.

ENVIRONMENTAL MITIGATION AGREEMENT

FILE NO. LUA 2001-001

THIS AGREEMENT is entered into by and between the City of Des Moines, a municipal corporation hereinafter referred to as the "City" and John Ayar, hereinafter referred to as the "Developer".

WHEREAS, this agreement is executed pursuant to Chapter 43.21 RCW, the State Environmental Policy Act (SEPA), and Title 16 Des Moines Municipal Code, to provide for mitigation of existing and known environmental impacts associated with the development hereinafter described. This agreement is not, and shall not be construed as a voluntary agreement pursuant to RCW 82.02.020, and the provisions of RCW 82.02.020 shall not be applied hereto. This agreement does not preclude any evaluation and determination by the City of Des Moines upon later actions or proposals undertaken by the Developer which may require a determination of significance and environmental review under SEPA, and

WHEREAS, the Developer is seeking approvals to subdivide 3.56 acres into 12 lots for subsequent single family residential use including improvements for on and off site drainage, parking, and landscaping on property located at South 272nd Street and Marine View Drive South, further described as:

TAX LOT 3222049057, AS SHOWN IN RECORDS OF THE ASSESSOR, KING COUNTY, WASHINGTON.

Legal Description:

PARCEL A:

THAT PORTION OF THE NORTH HALF OF THE NORTH HALF OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER AND THE NORTH HALF OF THE NORTH HALF OF GOVERNMENT LOT 1, LYING EASTERLY OF THE W.A. HALL (COUNTY) ROAD;
ALL IN SECTION 32, TOWNSHIP 22 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON;
EXCEPT THE NORTH 30 FEET THEREOF FOR COUNTY ROAD;
AND EXCEPT PORTION LYING EASTERLY OF A LINE DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT 467.3 FEET EASTERLY OF THE W.A. HALL (COUNTY) ROAD LOCATED ON THE SOUTH LINE OF THE NORTH HALF OF THE NORTH HALF OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER AND OF THE NORTH HALF OF THE NORTH HALF OF GOVERNMENT LOT 1 OF SAID SECTION;
THENCE NORTHERLY AT RIGHT ANGLES TO SAID SOUTH LINE A DISTANCE OF 151.1 FEET;
THENCE EASTERLY AT RIGHT ANGLES A DISTANCE OF 150 FEET;
THENCE NORTHERLY AT RIGHT ANGLES A DISTANCE OF 150 FEET TO THE INTERSECTION OF THE SOUTH MARGIN OF COUNTY ROAD WHICH POINT IS LOCATED 600 FEET EASTERLY OF THE EAST MARGIN OF W.A. HALL (COUNTY) ROAD AND TERMINUS OF SAID LINE DESCRIPTION;
AND EXCEPT PORTION FOR MARINE VIEW DRIVE AS CONVEYED TO KING COUNTY BY QUIT CLAIM DEED UNDER RECORDING NO. 6211963;
AND TOGETHER WITH PORTION OF MARINE VIEW DRIVE VACATED UNDER KING COUNTY ORDINANCE NO. 3429 AND RECORDED UNDER RECORDING NO. 7710120660.

WHEREAS, the City of Des Moines Community Development Department has determined that the proposed development of the subject property may result in adverse environmental impacts which requires the Developer to modify the submitted environmental application by entering into an agreement to mitigate such impacts; and

WHEREAS, dedication and improvement of park land the area of which shall not be less than 5% of the total sum area of the proposed developable lots is required of new subdivisions. The City will accept payment in-lieu of the dedication of park land if it is determined that the area proposed for dedication is unusable or not needed for recreation purposes; and

WHEREAS, The existing ingress/egress easement for adjacent parcel No. 3222049076 crosses through the center of proposed Lot 1; and

WHEREAS, the storm water detention vault is required to control flooding, erosion, sedimentation and water quality degradation; and

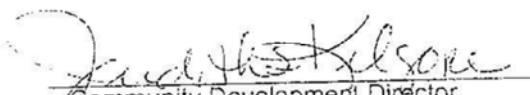
WHEREAS, the proposed plan will result in a substantial retaining structure at or near the west property line; and

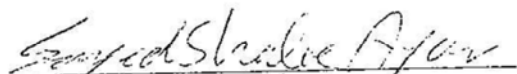
NOW, THEREFORE, the City and Developer agree that the following mitigation measures shall be employed by the Developer to ensure that possible adverse environmental impacts created by the proposed project are minimized or eliminated.

1. The Developer shall dedicate a minimum of 5.086-sq. ft. of land area within the proposed subdivision for use as a public park. The dedicated park area shall also be improved to the satisfaction of the Parks and Recreation Director. Improvements shall be completed to a minimum level of \$4.00 per sq. ft. (adjusted for inflation quarterly from base index January 2001). A park plan shall be submitted by the Developer for review and approval by the Parks and Recreation Director.
2. The Developer shall submit detailed construction plans for the proposed retaining wall along the west property line to the Community Development Director for review and approval. The plan shall demonstrate that in addition to being structurally suitable, it contains materials and design specifications which assure visual relief of a potentially massive and unattractive structure.
3. The Developer shall submit detailed plans and construct surface improvements for Tract E that includes a planting plan and a pedestrian walkway. A notation on the plat shall be made that the responsibility to maintain Tract E shall be equally divided among the property owners in the plat.
4. The Developer shall cause the existing easement serving the adjacent parcel No. 3222049076 to be dissolved by recorded instrument. Tract D shall establish new ingress/egress to parcel No. 3222049076. A notation on the plat shall be made to establish maintenance and ownership of said Tract.
5. At time of submittal of a grading clearing and filling permit, the Developer shall submit a plan indicating any significant trees to be retained within required setback areas and areas not occupied by future residences.
6. The Developer shall remove the existing residence prior to submitting for final plat approval by the City.
7. This agreement shall be binding upon the heirs, successors, assigns and all other parties legally empowered with signatory rights of any or all of the parties hereto.
8. Should the term, provision, condition or other portion of the Agreement be held to be inoperative, invalid, or void, the same shall not affect any other term, provision, condition or other portion of this Agreement; and the remainder of this Agreement shall be effective as if such term, provision, condition or portion had not been contained herein.

CITY:

DEVELOPER:


Community Development Director.
Judith S. Kilgore


John Ayar

EXCERPT

DES MOINES CITY COUNCIL MINUTES

December 14, 2006

PUBLIC HEARING

Draft Resolution No. 06-260 - Preliminary Plat Mediterranean Heights

Mayor Sheckler introduced the subject and questioned whether anyone had signed up to speak. City Clerk stated no one had. He then asked the audience if there was anyone who wished to speak and there was no response. He called on Administration to describe the matter.

Development Services Manager Ruth informed Council that staff has been working with the builder/developer John Ayar for about 5 years concerning site improvements related to this subdivision located in the Redondo area. He noted the development is already 90% complete, with road systems, utility and storm system installed. He advised that Mr. Ayar is requesting a few changes to the plat that was approved by Council in 2001, which has resulted in the need to re-process the plat with tonight's Public Hearing. The main change is a request to replace the Park Tract within the subdivision with a single family building lot, and to pay the Park in-lieu fees, in place of providing park space within the development. He noted Council has been supplied with two plans; the Old Plan being the subdivision design that was reviewed and approved by Council in 2001, and the New Plan which is being proposed tonight. He advised that staff has reviewed the new plan and determined it is consistent with both the City's zoning standards and the subdivision code. He proceeded to review, with the use of a visual plat map, the following changes to the Plat:

1. A new single family residence has been construction & is depicted within proposed lot 5.
2. Lot 5 on the new plan was widened by 5' because of the impact a sewer easement has on the building envelope. Lot lines and area from Lots 6-8 were incrementally adjusted to shift area to Lot 5.
3. The new plan has been updated to reflect the construction of a retaining wall at the rear property lines of proposed Lots 5-9 and a secondary landscape planter wall parallel to this retaining wall.
4. Partial use of a portion of the previously disturbed wetland buffer for drainage and open space tracts are now reflected in the new plan.
5. The easterly drainage tract has been enlarged to allow for grading transitions and reshaping of the pond.
6. The park tract on the old plan has been removed and replaced with an additional residential building lot - Lot 12.
7. Additional land area (approx. 1800 sq. ft) has been shifted into proposed Lot 12 on the new plan.
8. The lot lines for the access tract (Tract D) and Lots 1f-4 have been incrementally adjusted to shift to the south and west to provide the additional area to the new proposed Lot 12.
9. A drainage easement straddling Lots 8 and 9 has been more clearly depicted.
10. A sewer easement within Lot 5 has been more clearly depicted. A companion off site easement immediately adjoining the on site easement immediately adjoining the on site sewer easement is also identified, but not fully executed.

11. The common utility easement adjacent to the internal roadway has been more clearly depicted.
12. The existence of temporary and permanent access easements to serve an adjoining property owner has been clarified.
13. The notes, conditions and covenants, and restrictions section have been significantly expanded under the new plan and provide greater description and clarity than the old plat.

In conclusion, Development Services Manager Ruth noted the most significant change is the park tract and Mr. Ayar is asking for Council's approval. He stated that staff is requesting Council approve Draft Resolution No. 06-260.

Upon questioning, Development Services Manager Ruth commented that Tract E is a small left-over parcel that the applicant wishes to use a pea-patch or garden area to be used exclusively by residents of the Sub-division. Councilmember Scott felt it would be best to have this land added to Lot 12.

Mayor Pro Tem Thomasson was of the opinion that Tract E should be designated as a wetland buffer. He also questioned how the dollar amount for the Park-in-lieu fees was arrived at. In regards to the drainage improvements, he questioned if they have been built to the new regulations.

Development Services Manager Ruth confirmed that the drainage improvements do meet the new regulation standards, and have been reviewed by City's SWM Engineer.

In regards to wetland buffers, Development Services Manager Ruth noted that previously Lot 12 was designated as a Park tract that would have been developed for passive recreation purposes, and extend it out into the previously disturbed buffer area. He advised that the wetland is ranked as a significant wetland deserving of a 100' buffer. He noted however, through no fault of the applicant, there was an existing driveway and improvements through the buffer which had removed a lot of what a buffer is suppose to do.

Development Services Manager Ruth informed Council that the dollar amount of the Park-in-lieu fees was based upon the purchase price of the property and adding an escalator for each of the 5 years since purchase, and applying our park standard for both lot value and improvements, which came out to \$5,250. Mayor Pro Tem Thomasson pointed out this is for undeveloped land cost and the Code calls for using developed land costs.

Development Services Manager Ruth noted Council could choose to have the Park fee based on an appraisal at the time of final plat.

Upon questioning by Mayor Pro Tem Thomasson as to why earlier a Park was a good idea and now it is not, Parks and Recreation Director Thorell advised that through the Master Planning process, it has been determined that parks are to be a half acre or larger. Also there was concern over the amount of maintenance that goes with small pocket parks. In this particular case there were concerns over the size and location, as it appeared to be more like maintaining an entry way into a subdivision, instead of a public park facility. Also there were no sidewalks or other amenities leading to it.

Councilmember White stated she would like to ask why this process has taken five years. Mayor Sheckler advised he would allow testimony from the audience as long as speakers realized they would need to take an oath.

John Ayar, applicant, was sworn in by Mayor Sheckler.

Mr. Ayar informed Council he had concerns that a park on site, would raise safety and security issues. He noted that there are people living illegally in the wooded area and there has been arrests for someone stripping wires on his property to sell. He advised that he will be building nice homes, which will add to the City's tax base.

City Manager Piasecki noted that shortly after Council approved the Plat in 2001 for 11 lots, Mr. Ayar determined he wanted 12 building sites and was told he could apply for a Plat modification, which turned out he could not. So he was told he could build what was approved, appeal it, or apply for another preliminary plat. Since that time he has been busy with site improvements and a wall installation, until he finally applied for a new preliminary plat which is where we are tonight.

Mayor Pro Tem Thomason requested more details on the Park in lieu fees, and whether the wetland has been analyzed which would impact his thoughts on the garden area where people may bring fertilizer, etc. that could negatively impact the wetlands.

8:50 p.m. Mayor Sheckler declared a 10 minute break.

Development Services Manager Ruth noted the Park-in-lieu fee contained in 17.36.150 of DMMC states: "The applicant may voluntarily agree to make an in-lieu payment to the City which shall be deposited into the City Park Fund. The in-lieu amount for dedication shall be equal to 5% of the market value of lots within the subdivision. The in-lieu amount for improvements shall be the current maximum improvement cost for sq. ft. for 5% of the total lot area, exclusive of rights-of-way in tracts within the subdivision. Market value shall be established by a real estate appraisal submitted by the applicant. If the land is dedicated, but not improved, only the fee in-lieu of shall be required. The in-lieu cash payment shall be used for the acquisition and development of parks determined necessary as a consequence of the proposed development subdivision or plat. Such payment shall be managed, utilized or refunded in accordance with Chapter 18.02 RCW."

Upon questioning, Development Services Manager Ruth stated the Park in-lieu fee was not determined by a real estate appraisal. The amount listed in staff's report was based on purchase price of the property in 2001, with an inflation factor for the five years to 2006 at 5% against the total number of lots in the subdivision.

City Manager Piasecki noted the park fee is normally submitted at the time of submittal for a Final Plat, therefore a condition can be added to this preliminary plat that says "at the time of filing for the Final Plat the applicant shall supply the appraisal as noted and an appropriate in-lieu fee based upon the formula in the Code.

In regards to the buffer, Development Services Manager Ruth advised it has been determined this would be a type 2 wetland rating. However, those code are not in place at this time since it was vested at the time of application. Current codes states that the City can consider utilization

of a portion of a buffer that has been previously disturbed, however the City is not obligated to do so. He noted that if Council determines Tract E would be better used as a buffer, Mr. Ayar has indicated he would accept that decision.

Councilmember Scott suggested taking part of Tract E to make Lot 12 a little deeper, and keep the rest as access so when the whole wetland and buffer are fully planned, if there were to be a walking trail there would be access from this Plat. Development Services Manager Ruth replied this could be done, but staff does not recommend that.

City Manager Piasecki noted Council could have Tract E merge with Tract X to become part of an enhanced buffer. As other properties to the east and southeast develop, and the City wanted to develop a trail network, Tract X will be dedicated to the City and the City could then patch in to a trail system. Development Services Manager Ruth noted we would have to modify who the beneficiary is for the path, because right now it is limited exclusively to the owners of the 12 lots.

Mr. Ayar informed Council he would oppose using the property for a public trail due to safety and security concerns. He would prefer Tract E remain as a garden area and he suggested it could be labeled an "organic" garden.

Mayor Sheckler declared the Public Hearing CLOSED.

MOTION was made by Mayor Pro Tem Thomasson, seconded by Councilmember Pina, to adopt Draft Resolution No. 06-260, as amended to incorporate Tract E into Tract X and that the Park Fee be based on an appraisal per Code at time of final Plan. Further Findings of Fact will be modified to accommodate amendments. Motion passed unanimously.

PLANNING, BUILDING, AND PUBLIC WORK'S FIRST DRAFT, 05/21/2007

DRAFT RESOLUTION NO. 07-120

A RESOLUTION OF THE CITY OF DES MOINES, WASHINGTON approving the final plat and subdivision of Mediterranean Heights as shown and described in city administration file number LUA 2006-011.

WHEREAS, city administration has received an application for a subdivision of property within a RS-7200 zone, known as Mediterranean Heights, and said application having been made by Mr. John Ayar (a.k.a. Sayed Shafie Ayar), the owner of the real property described in said application, and

WHEREAS, pursuant to the State Environmental Policy Act, RCW 43.21C, the Administrative Guideline and local ordinance adopted to implement it, the SEPA Official reviewed all relevant environmental documents and determined that the proposed subdivision would not result in probable significant adverse environmental impacts, and based on information within those environmental documents, a Determination of Non-significance was issued, and

WHEREAS, said environmental documents have been available and accompanied the application throughout the entire review process, and

WHEREAS, the City Council, in regular meeting on December 14, 2006, reviewed and conditionally approved the preliminary plat for the "Mediterranean Heights Plat", and

WHEREAS, the preliminary plat approved by the City Council in regular meeting on December 14, 2006 involved a subdivision design that contained substantial changes from an earlier preliminary plat application and design filed in 2001 by the same applicant which necessitated the filing of a new application for Mediterranean Heights, and

WHEREAS, the City Council, in regular meeting on June 14, 2007, reviewed the proposed final plat for Mediterranean Heights; now, therefore

THE CITY COUNCIL OF THE CITY OF DES MOINES RESOLVES AS FOLLOWS:

Sec. 1. The following findings of fact are adopted by the Des Moines City Council:

(1) The final plat is consistent with the preliminary subdivision approved by the City Council on December 14, 2006, under City Council Resolution No. 1022.

(2) All required improvements are installed or securities to cover the cost of installation are submitted in accordance with DMMC 17.40.090, and

(3) The final plat is consistent with the provisions of Title 17 DMMC, and chapter 58.17 RCW.

Sec. 2. Decision criteria. The criteria used in making the decision are those required by DMMC 17.16.230.

Sec. 3. Approval. The subdivision and final plat of Mediterranean Heights is hereby approved by the Des Moines City Council.

Sec. 4. Compliance with other law. Nothing in this resolution shall be construed as excusing the applicant from compliance with all federal, state, or local statutes, ordinances, or regulations applicable to this subdivision other than as expressly set forth herein.

Sec. 5. Resolution attached to approval documents. A certified copy of this resolution, along with the findings of fact herein adopted, shall be attached to and become a part of the evidence of said subdivision and final plat and shall be delivered to the applicant.

Sec. 6. Distribution of resolution following City Council action. Certified or conformed copies of this resolution shall be delivered to the following:

(1) City of Des Moines Planning Building and Public Works department and Building Division;

(2) South King Fire and Rescue; and

(3) City Clerk of the City of Des Moines.

ADOPTED BY the City Council of the City of Des Moines, Washington this _____ day of _____, 2007 and signed in authentication thereof this _____ day of _____, 2007.

APPRAISAL OF REAL PROPERTY

LOCATED AT:

1211 S. 272nd
See Addendum
Des Moines , WA 98033

FOR:

Sayed Shafie Ayar

AS OF:

March 1, 2007

BY:

Sheridan Shaffer
Certified General Real Estate Appraiser

LAND APPRAISAL REPORT

File No. 01162007

Borrower Client: Sayed S. Ayar
 Property Address: 1211 S. 272nd
 City: Des Moines
 County: King
 State: WA
 Zip Code: 98033
 Legal Description: See Addendum
 Sale Price: \$ N/A
 Date of Sale: N/A
 Loan Term: N/A yrs
 Property Rights Appraised: ☒ Fee ☐ Leasehold ☐ De Minimis PUD
 Actual Real Estate Taxes: \$ (Yr)
 Loan charges to be paid by seller: \$
 Other sales concessions:
 Lender/Client: Sayed Shafie Ayar
 Appraiser: Sheridan Shaffer
 Instructions to Appraiser: Hypothetical Condition. Property is to be appraised
 Occupant: Vacant Land
 Intended use of appraisal is as part of subdivision application to City of Des Moines

Location: ☒ Urban ☒ Suburban ☐ Rural
 Built Up: ☒ Over 75% ☐ 25% to 75% ☐ Under 25%
 Growth Rate: ☐ Fully Dev ☐ Rapid ☐ Steady ☐ Slow
 Property Values: ☐ Increasing ☐ Stable ☐ Declining
 Demand/Supply: ☐ Shortage ☐ In Balance ☐ Oversupply
 Marketing Time: ☐ Under 3 Mos ☐ 4-6 Mos ☐ Over 6 Mos
 Present Land Use: 80% 1 Family 2.5% 2-4 Family 2.5% Apts 2.5% Condo 2.5% Commercial
 Change in Present Land Use: ☐ % Industrial ☐ 10% Vacant ☐ % Taking Place (*)
 Predominant Occupancy: ☒ Owner ☐ Tenant ☐ % Vacant
 Single Family Price Range: \$ to \$ Predominant Value: \$ 375
 Single Family Age: 0 yrs. to 50 yrs. Predominant Age: 30-45 yrs.

	Good	Avg	Fair	Poor
Employment Stability	☒	☒	☒	☒
Convenience to Employment	☒	☒	☒	☒
Convenience to Shopping	☒	☒	☒	☒
Convenience to Schools	☒	☒	☒	☒
Adequacy of Public Transportation	☒	☒	☒	☒
Recreational Facilities	☒	☒	☒	☒
Adequacy of Utilities	☒	☒	☒	☒
Property Compatibility	☒	☒	☒	☒
Protection from Detrimental Conditions	☒	☒	☒	☒
Police and Fire Protection	☒	☒	☒	☒
General Appearance of Properties	☒	☒	☒	☒
Appeal to Market	☒	☒	☒	☒

Comments including those factors, favorable or unfavorable, affecting marketability (e.g. public parks, schools, view, noise): Attractive suburban neighborhood located midway between the city of Seattle and the city of Tacoma offers excellent view of Puget Sound. Situated with convenient access to Interstate 5 with short travel time to major shopping and employment centers. External depreciation taken for noise nuisance due to location near to Seattle Tacoma International Airport.

Dimensions: Irregular - see plat map 3.56 Sq. Ft. or Acres
 Zoning classification: Rs 7200 - Min lot size 7200 sq. ft.
 Highest and best use: ☒ Present use ☐ Other (specify) Improved with sf residences
 ELEC: ☒ Public ☐ Other (Describe)
 Gas: ☒ Available
 Water: ☒ Available
 San Sewer: ☒ Available
 Underground Elect. & Tel.
 OFF SITE IMPROVEMENTS: Street Access ☒ Public ☐ Private
 Surface: Asphalt
 Maintenance: ☒ Public ☐ Private
 Storm Sewer: ☐ Curb/Gutter
 Sidewalk: ☐ Street Lights
 Topo: Mildly uneven site
 Size: 3.56 Acres
 Shape: Roughly Rectangular (Irregular) See Plat
 View: Good Puget Sound
 Drainage: Appears Adequate
 Is the property located in a HUD Identified Special Flood Hazard Area? ☒ No ☐ Yes

Comments (favorable or unfavorable including any apparent adverse easements, encroachments, or other adverse conditions): This property is to be appraised "as if" no improvements had been made to the property (which is a hypothetical condition contrary to fact as of the effective date of this appraisal). The unimproved property was purchased 07/03/2001 for \$470,000. The property is appraised as if it were in the same condition it was as of that date and as if no improvements had been made to the raw land.

The undersigned has noted three recent sales of properties most similar and proximate to subject and has considered these in the market analysis. The description includes a dollar adjustment reflecting market reaction to those items of significant variation between the subject and comparable properties. If a significant item in the comparable property is superior to or more favorable than the subject property, a minus (-) adjustment is made thus reducing the indicated value of subject. If a significant item in the comparable is inferior to or less favorable than the subject property, a plus (+) adjustment is made thus increasing the indicated value of the subject.

ITEM	SUBJECT PROPERTY	COMPARABLE NO. 1	COMPARABLE NO. 2	COMPARABLE NO. 3
Address	1211 S. 272nd Des Moines	14xx 272nd Des Moines	272xx 16th Ave. S. Des Moines	2745 16th Ave. S. Des Moines
Proximity to Subject		1/4 Block East	1/2 Block Southeast	1 Block Southeast
Sales Price	\$ N/A	\$ 1.84	\$ 1.53	\$ 5.71
Price per square foot		\$ 1.84 persf	\$ 1.53persf	\$ 5.71persf
Data Source	Owner, County Rec	Owner, County Rec	Owner, County Rec	Owner, County Rec
Date of Sale and Time Adjustment	DESCRIPTION N/A	DESCRIPTION 1/17/2007	DESCRIPTION 8/09/2006	DESCRIPTION 10/18/2006
Location	Residential Area	Residential Area	Residential Area	Residential Area
Site/View	Average Sound Vw	Limited Sound Vw +1.00	Limited Sound View +1.00	Limited Sound View +1.00
Site Size	3.56 Ac (155,074sf)	4.12 Ac (179,467sf)	1.8 Ac (78,408sf)	3.01Ac (131,116sf)
Topography	Mostly Level/Wooded	Similar	Similar	Similar
Zoning/Plans/Permits	RS 7200/None/None	RS 7200/None/None	RS 7200/None/None	RS 7200/None/None
Special Conditions	No	No	No	Yes/NecPurchase -2.50
Sales or Financing Concessions	N/A	None Noted	None Noted	None Noted
Net Adj. (Total)		\$ 1	\$ 1	\$ -1.5
Indicated Value of Subject		\$ 2.84	\$ 2.53	\$ 4.21

Comments on Market Data: Adjustment were made on the basis of price per sq. ft. Special conditions adjustment made to comparable #3 based on information provided by real estate agent representing purchaser in the transaction. Adjustment of 1.00 per sq. ft. made for variations in view quality. See Comparable #4 and #5 on following page. Indicated price range is \$2.53 to \$4.84 per square foot.
 Comments and Conditions of Appraisal: This property is to be appraised "as if" no improvements had been made to the property (which is a hypothetical condition contrary to fact as of the effective date of this appraisal). The unimproved property was purchased 07/03/2001 for \$470,000. The property is appraised as if it were in the same condition it was as of that date and as if no improvements had been made to the raw land.

Final Reconciliation: Comparable #1 is similar in size to subject (4.12 Acres) & sold for \$330,000 in Jan. of 2007. Comparable #2 is a smaller parcel of land (1.18 Acres) which sold for \$120,000 in August of 2006. Comparable #3 is similar in size & sold for \$749,000 in October of 2006. According to agent, purchaser paid above market. Most weight given to comparable 1, 2 & 3 because they are most similar to subject.
 I ESTIMATE THE MARKET VALUE, AS DEFINED, OF SUBJECT PROPERTY AS OF March 1, 2007 to be \$ 3.25 per sq. ft.
 This represents a market price of \$500,000 for the 3.56 acre parcel as of March 1, 2007.

Sheridan Shaffer
 Appraiser(s)
 Review Appraiser (if applicable)
 Did ☐ Did Not Physically Inspect Property ☐

(72K)

MARKET DATA ANALYSIS

01162007

File No. 01162007

ITEM	SUBJECT PROPERTY	COMPARABLE NO. 4		COMPARABLE NO. 5		COMPARABLE NO. 6	
Address	1211 S. 272nd Des Moines	24xx 204th St. Des Moines		281xx 15th Ave. S. Des Moines			
Proximity to Subject		1 Mile North		9 Blocks South			
Sales Price	\$ N/A	\$ 5.34		\$ 2.25		\$	
Price per square foot	\$	\$		\$		\$	
Data Source	Owner, County Rec	Owner, County Rec					
Date of sale and Time Adjustment	DESCRIPTION N/A	DESCRIPTION 11/08/2006	+(-)\$ Adjust	DESCRIPTION 09/01/2005	+(-)\$ Adjust + .33	DESCRIPTION	+(-)\$ Adjust
Location	Residential Area	Residential Area		Residential Area			
Site/View	Average Sound Vw	Limited Sound Vw +1.00		Limited Sound Vw +1.00			
Site Size	3.56 Ac (155,074sf)	64 Ac 28,000 sf -1.50		9.19 Ac (400,316sf) +1.00			
Topography	Mostly Level/Wooded	Mostly Level/Wooded		Mostly Level/Wooded			
Zoning/Plans/Permits	RS 7200/None/None	RS 7200/None/None		RS 7200/None/None			
Special Conditions	No	None Noted		None Noted			
Sales or Financing Concessions	N/A	N/A		N/A			
Net Adj. (Total)		+ - \$ -0.5		+ - \$ 2.33		+ - \$	
Indicated Value of Subject		\$ 4.84		\$ 4.58		\$	
Comments: Comparable # 4 is a significantly smaller parcel of land (.64 Acres) which sold for \$150,000 in November of 2006. Comparable #5 is a significantly larger parcel of land (9.19 Acres) which sold for \$900,00 in September of 2005. Both parcels were purchased for purposes of subdivision and residential development. Adjustments were made on the basis of price per sq. ft. An adjustment of 20% was made for variations in view quality. Since smaller lot sizes tend to sell for more per sq. ft. and larger lot sizes tend to sell for less per sq. ft., a minimal lot size adjustment of \$1.50 was made to comparable #4 for the large variation in lot sizes. Comparable #5 sold 18 months prior to the effective date of this appraisal, so a 15% time adjustment was applied based on appreciation figures from the Northwest Multiple Listing Service. Lot size adjustment. Smaller variation in lot size adjustment at \$1.00 per sq. ft.							

AGENDA ITEM**BUSINESS OF THE CITY COUNCIL**
City of Des Moines, WA

SUBJECT: Des Moines Activity Center
Landscaping Project

FOR AGENDA OF: June 14, 2007

DEPT. OF ORIGIN: Parks, Recreation and
Senior Services

DATE SUBMITTED: June 5, 2007

ATTACHMENTS:

- A. Draft Contract between the City of Des Moines and Creative Bros. Landscaping Corp
- B. Bid Tabulation
- C. Regular Meeting Des Moines City Council Minutes – October 2006 – Excerpt Page 8

CLEARANCES:

[x] Parks & Recreation Director 
[x] City Attorney

**APPROVED BY CITY MANAGER
FOR SUBMITTAL:** 

Purpose and Recommendation:

The purpose of this agenda item is to award a Small Works Project for the landscaping of the Des Moines Activity Center.

Proposed Motions:

1. "I move to direct staff to transfer up to \$21,799.60 from un-programmed excess 2006 Real Estate Excise Tax year-end balance, in the next available budget amendment, to provide funding for the Activity Center Landscaping Project."
2. "I move to approve the Contract for the Des Moines Activity Center Project to the lowest bidder, Creative Bros. Landscape Corp. for the bid amount of \$15,957.00 plus tax and authorize the City Manager to sign the contract, substantially in the form as submitted. And to authorize City Manager to approve change orders not to exceed 10% of the total contract amount."

Or

3. "I move to approve the Contract for the Des Moines Activity Center Landscaping Project to the lowest bidder, Creative Bros. Landscape Corp. to include the bid amount of \$15,453.00 and Alternate #1 in the additive amount of \$4,565.00 for a total bid of \$20,018.00 plus tax and authorize the City Manager to sign the contract, substantially in the form as submitted. And to authorize City Manager to approve change orders not to exceed 10% of the total contract amount."

Background:

At the Regular Council Meeting held in October 2006, Council reviewed the 2007-2008 Capital Improvement Plan which included the need to landscape the rear yard of the Activity Center. The intent of City Council was to approve the Activity Center Landscaping Project but the project was overlooked during the review process and funds were never appropriated in the 2007 Capital Improvement Plan.

In 2006, the patio, site irrigation, and drainage was installed and this project would complete the landscaping plan for the area.

Discussion:

Landscape Contractors on the City's Small Works Roster were invited to bid on the Activity Center Landscaping Project in early May.

The scope of work included renovating and grading 19,000 sq ft east and south of the Activity Center building, installation of top soil, and the application of hydroseed.

Or

Bid Alternate #1 which included renovating and grading 19,000 sq ft, installation of top soil, hydroseeding 15,400 sq ft, and installing 3,600 sq ft of matching sod. This alternate is proposed to provide immediate visual appeal surrounding the Activity Center patio.

Alternatives:

1. Hydroseed entire area east and south of the Activity Center as identified in the scope of work, at a cost of \$15,957.00 plus tax, totaling \$17,377.17.
2. Hydroseed 15,400 sq ft of identified area and install 3,600 sq ft of matching sod, at a cost of \$20,018.00 plus tax, totaling \$21,799.60.
3. Reject all bids received on May 30, 2007.

Financial Impact:

Un-programmed excess 2006 Real Estate Excise Tax year-end balance would be redirected to complete the Activity Center Landscaping Project.

Recommendation/Conclusion:

Staff recommends approval of the Activity Center Landscaping Project contract with Creative Bros. Landscaping Corp.

Concurrence

The Legal Department has reviewed the draft agreement and concurs with its form.

DRAFT
CONTRACT FOR LANDSCAPING SERVICES
BETWEEN THE CITY OF DES MOINES AND

THIS CONTRACT is made and entered into this 15TH day of June, 2007, by and between the **CITY OF DES MOINES**, Washington, hereinafter called the "**City**," and **Creative Bros. Landscaping**, hereinafter called the "**Contractor**."

WHEREAS, the City has requested assistance in providing landscaping services for the Activity Center, hereinafter called the "Project"; and

WHEREAS, Contractor has agreed to provide installation services and is qualified to provide and perform the services described in this Agreement;

NOW THEREFORE, in consideration of the mutual promises and covenants herein contained and other good and valuable consideration, it is mutually agreed as follows:

1. **Scope of Service.** The Contractor shall provide the services identified in the Bid Proposal Form, dated May 30, 2007, which is attached to this agreement as Exhibit No. 1 and incorporated herein by this reference.
2. **Contractor's Obligations.** All labor, materials, tools, software, equipment, utilities, services, and all other things necessary or required in the satisfactory performance of the work shall be furnished by the Contractor and the Contract shall be performed and completed under the supervision of and subject to the approval of the City or its authorized representatives.
3. **Compensation.** In consideration for the complete and faithful performance of the Contract, the Contractor shall be paid as follows: \$_____ total, which includes applicable sales tax. The Contractor shall submit invoices in a timely manner, in a form as directed by the City's authorized representative(s). Invoices, less a 5% retainage, shall be paid within thirty (30) days of receipt. The 5% retainage shall be payable at the end of the project when all required release letters have been delivered to the City.
4. **Performance Standards.** Contractor's services, and all duties incidental or necessary thereto, shall be conducted and performed diligently and competently and in accordance with professional standards of conduct and performance. All work is to be done in accordance with City of Des Moines, County and State laws.
5. **Record Keeping.** All records or papers of any sort relating to the City and the project will at all times be the property of the City and shall be surrendered to the City upon demand. All information concerning the City and said project, which is not otherwise a matter of public record or required by law to be made public, is confidential, and the Contractor will not, in whole or in part, now or at any time, disclose that information without the express written consent of the City Attorney.

6. **Assignment.** This Contract may not be assigned or otherwise transferred by either party hereto.

7. **Modification.** No change, alteration, modification, or addition to this Contract will be effective unless it is in writing and properly signed by both parties.

8. **Independent Contractor.** The services provided by the Contractor under this Contract are provided as an independent Contractor. Nothing in this Contract shall be considered to create the relationship of employer and employee between the parties. Neither the Contractor nor any employee of the Contractor shall be entitled to any benefits accorded City employees by virtue of the services provided under this Contract. The City will not be responsible for withholding or otherwise deducting federal income tax or social security payments, or contributing to the State Industrial Insurance Program, or otherwise assuming the duties of an employer with respect to the Contractor.

9. **Indemnification / Hold Harmless.** Contractor shall indemnify and hold the City, officials, employees and volunteers harmless from any and all damages, including attorney fees, caused by the negligent acts, errors or omissions of the Contractor in performance of the professional services of this Agreement. The City shall hold the Contractor harmless from any and all damages caused by the negligence of the City.

10. **Insurance.** The Contractor shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, its agents, representatives, or employees.

a) Minimum Scope of Insurance

Contractor shall obtain insurance of the types described below:

1. Automobile Liability insurance covering all owned, non-owned, hired and leased vehicles. Coverage shall be written on the Insurance Services Office (ISO) form CA 00 01 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage.

2. Commercial General Liability insurance shall be written on ISO occurrence form CG 00 01 and shall cover liability arising from premises, operations, independent contractors personal injury and advertising injury. The City shall be named as an insured under the Contractor's Commercial General Liability insurance policy with respect to the work performed for the City.

3. Workers' Compensation coverage required by the Industrial Insurance laws of the state of Washington.

b) Minimum Amount of Insurance

Contractor shall maintain the following insurance limits:

1. Automobile Liability insurance with minimum combined single limit for bodily injury and property damage of \$1,000,000 per accident.
2. Commercial General Liability insurance shall be written with limits no less than \$1,000,000 each occurrence, \$2,000,000 general aggregate.

c) Other Insurance Provisions

The insurance policies are to contain, or be endorsed to contain, the following provisions for Automobile Liability, Professional Liability and Commercial General Liability insurance:

1. The Contractor's insurance coverage shall be primary insurance as respect to the City. Any insurance, self-insurance, or insurance pool coverage maintained by the City shall be excess of the Contractor's insurance and shall not contribute with it.
2. The Contractor's Insurance shall be endorsed to state that coverage shall not be cancelled by either party, except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.

d) Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best rating of not less than A:VII.

e) Verification of Coverage

Contractor shall furnish the City with original certificates and a copy of the amendatory endorsements, including but not necessarily limited to the additional insured endorsement, evidencing the insurance requirements of the Contractor before commencement of the work.

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11. Dispute Resolution Procedures.

- (a) **Mediation/Arbitration.** If a dispute arises from or relates to this Contract or the breach thereof and if the dispute cannot be resolved through direct discussions, the parties agree to endeavor first to settle the dispute in an amicable manner by mediation administered by

a mediator under the American Arbitration Association's Rules before resorting to arbitration. The mediator may be selected by agreement of the parties or through the American Arbitration Association. Following mediation, any unresolved controversy or claim arising from or relating to this Contract or breach thereof shall be settled through arbitration which shall be conducted under the American Arbitration Association's Arbitration Rules. The arbitrator may be selected by agreement of the parties or through the American Arbitration Association. All fees and expenses for mediation or arbitration shall be borne by the parties equally. However, each party shall bear the expense of its own counsel, experts, witnesses, and preparation and presentation of evidence.

(b) ***Venue, Applicable Law and Personal Jurisdiction.*** All questions related to this Contract shall be resolved under the laws of the State of Washington. In the event that either party deems it necessary to institute legal action arising from this Contract, such action shall be instituted in the King County Superior Court. The parties each consent to the personal jurisdiction of such court. Except as otherwise provided by law, it is expressly understood that neither party can institute any legal action against the other based on this Contract until the parties have exhausted the mediation and arbitration procedures required by the previous paragraph.

12. Severability. If any term, provision, covenant, or condition of this Contract is held by a court of competitive jurisdiction to be invalid, void, or unenforceable, the remainder of the provisions hereof shall remain in full force and effect and shall in no way be affected, impaired, or invalidated as a result of such decision.

13. Waiver. The waiver by either party of any breach of any term, condition, or provision of the Contract shall not be deemed a waiver of such term, condition, or provision or any subsequent breach of the same or any condition or provision of this Contract.

14. Captions. The captions used herein are for convenience only and are not a part of this Contract and do not in any way limit or amplify the terms and provisions hereof.

15. Time of Essence. Time is of the essence for each and all of the terms, covenants, and conditions of this Contract.

16. Concurrent Originals. This Contract shall be signed in four (4) counterpart originals.

17. Ratification and Confirmation. Any acts consistent with the authority and prior to the effective date of this Contract are hereby ratified and confirmed.

18. Business Licenses. The Contractor and all subcontractors that perform work on this project shall obtain a City of Des Moines business license per Des Moines Municipal Code

Chapter 5.04.020. Information and forms can be found on the City website at www.desmoineswa.gov.

19. Department of Labor and Industries Fees. The Contractor is responsible for all fees relating to the processing of the Department of Labor and Industries for: (1) Intent to Pay Prevailing Wages; and (2) Affidavit of Prevailing Wages Paid.

20. Washington State Sales Tax. The Contractor shall include the appropriate Washington State retail sales tax for this contract per State Department of Revenue Rule 170.

IN WITNESS THEREOF, four (4) identical counterparts of this Contract, each of which shall be deemed an original thereof, have been duly executed by the parties herein named, on the day and year first above written.

CITY OF DES MOINES

CREATIVE BROS. LANDSCAPING

By _____
Its _____

21630 11th Avenue S., Suite A
Des Moines, WA 98198

Dated _____

By _____
Its _____

Dated _____

APPROVED AS TO FORM:

City Attorney

**DES MOINES ACTIVITY CENTER
LANDSCAPING PROJECT**

ITEM DESCRIPTION	Creative Bros Landscaping	Dzingle's Landscaping
Base Bid		
Prep./ Install 19,000 sq.ft. Hydroseed	\$15,957.00	\$21,000.00
Total Base Bid	\$15,957.00	\$21,000.00
Sales Tax (8.9%)	\$1,420.17	\$1,869.00
Total Base Bid	\$17,377.17	\$22,869.00
Alternate #1		
Prep./ Install 15,400 sq. ft. of hydroseed	\$15,453.00	\$17,200.00
Install 3,600 sq. ft. of matching sod	\$4,565.00	\$6,120.00
Total Alternate Bid	\$20,018.00	\$23,320.00
Sales Tax (8.9%)	\$1,781.60	\$2,075.48
Total Alternate Bids*	\$21,799.60	\$25,395.48

ATTACHMENT C

grants that may become available.

Councilmember Scott stressed the importance of maintaining this structure to prevent future damage.

Mayor Sheckler requested staff actively look for grant funds which would help free up REET monies.

- *Steven J. Underwood Memorial Park*
2007 Complete Landscaping & Irrigation, Complete Rear Yard at Activity Center
TOTAL: \$93,804

2008 Complete Parking Lot Expansion
TOTAL: \$130,000

Parks and Recreation Director Thorell advised that per City Code there is a need to landscape the fence line, planting turf and installing irrigation.

Councilmember Scott stated she would only like to see the area around the Activity Center patio improved. An area larger than that, she felt, would only add more maintenance while expending a large amount of funds.

City Manager Piasecki reminded Council that to improve the area around the patio using hydro-seeding would cost \$21,000, if we use sod it would be \$37,000.

Mayor Pro Tem Thomasson voiced the opinion that Council needs to set an example of what to do and follow our own Code. However, he felt there should be a way to approach the improvements more economically.

10:28 p.m. **MOTION** was made by Councilmember Kaplan, seconded by Councilmember Pina, to extend the meeting to 10:45 p.m. Motion failed 4 to 2 as it requires a super majority vote, with Mayor Pro Tem Thomasson and Mayor Sheckler opposed.

- *Park and Playground Repair and Replacement*
2007 Field House Park, Wooton Park, Parkside Park and Cecil Powell Park
TOTAL: \$222,662

Mayor Pro Tem Thomasson stated he would prefer to see these Parks listed as separate projects so they can be dealt with independently. He pointed out that he can see the need for netting around the Field House ball fields, but not a need to grade the hillside and expand.

10:30 p.m. **MOTION** was made by Councilmember Kaplan, seconded by Councilmember Sherman to extend the meeting to 10:45 p.m. Motion passed 5 to 1 with Mayor Sheckler opposed.

Mayor Pro Tem Thomasson stated he would favor removal of the entire project so that each Park can be put back as an individual project.

Mayor Pro Tem Thomasson stated there are urgent safety needs, such as the baseball netting.

Parks and Recreation Director Thorell stated the play equipment at the Field House is also a safety issue. She referenced the wood structure (boat) as deteriorating. She also felt that the

A G E N D A I T E M

BUSINESS OF THE CITY COUNCIL City of Des Moines, WA

SUBJECT: Landmarque Subdivision

FOR AGENDA OF: May 24, 2007

DEPT. OF ORIGIN: Planning, Building, &
Public Works

DATE SUBMITTED: May 16, 2007

ATTACHMENTS:

1. Orthophoto Map
2. Zoning Map
3. Preferred Land Use Map
4. SEPA Mitigation Agreement
5. Planning Agency Minutes
6. DMMC § 17.20.030
7. Des Moines Comprehensive Plan Goals
8. Des Moines Comprehensive Plan
Policies/Strategies
9. Traffic Analysis
10. Technical Information Report
11. Wetland Report
12. DMMC § 18.86.094(6)
13. Landmarque Conceptual Home Designs
14. Landmarque Site Plans
15. Draft Resolution 07-106

CLEARANCES:

- [X] Planning, Building & Public Works *MS*
 [X] Legal *JB*
 [X] Parks, Recreation & Senior Services _____

APPROVED BY CITY MANAGER FOR
SUBMITTAL: *MS***Purpose and Recommendation:**

The purpose of this public meeting is to determine if the proposed preliminary townhouse modified subdivision entitled Landmarque is consistent with the requirements for a townhouse subdivision specified in Chapters 17.20 and 18.10 of the Des Moines Municipal Code. At this meeting, the focus of the City Council's efforts will be to review the approval criteria for a modified subdivision; determine if the proposed project satisfies the criteria; and either approve, approve with conditions, or deny the preliminary modified subdivision.

Administration has reviewed the applicant's proposal and has concluded it is consistent with the City's criteria for a modified subdivision. Administration recommends that the City Council

approve the proposed preliminary townhouse modified subdivision proposal by passing the following motion.

Suggested Motions

MOTION: "I move to adopt Draft Resolution 07-106 approving the proposed preliminary modified subdivision entitled 'Landmarque' and findings of fact."

Background:

In April 2006, Development Services determined the application materials submitted for a preliminary modified subdivision entitled Landmarque met the procedural submittal requirements established by DMMC § 17.40 and DMMC § 18.10. The application specifically requests to divide 3 existing tax parcels consisting of 10.04 acres into 66 attached single family lots (townhouses), 2 detached single family lots, and 1 commercial lot. Please refer to the Orthophoto Map (Attachment 1) for further details regarding the proposed site location. The majority of the property is zoned RA – 3,600 Residential: Attached Townhouse and Duplex 3,600 Zone, and the other portion is zoned C-C Community Commercial (CC). The Des Moines Comprehensive Plan has designated the RA-3,600 portion of the property as T: Townhouse and the CC portion of the property as Commercial. All residential units are located completely within the RA-3,600 zone and the Townhouse preferred land use designation. A list of the surrounding land uses, zoning classifications, and preferred land uses is provided below:

<i>EXISTING LAND USE:</i>	<i>ZONING:</i>	<i>PREFERRED LAND USE:</i>
<i>North:</i> Commercial and a Regional Storm Water Detention Facility	<i>North:</i> Residential Single Family 7,200 and Community Commercial	<i>North:</i> Single Family and Public Facility
<i>South:</i> Commercial	<i>South:</i> Community Commercial	<i>South:</i> Commercial
<i>East:</i> Vacant	<i>East:</i> City of Kent – General Commercial	<i>East:</i> City of Kent – Commercial
<i>West:</i> Single Family Residential	<i>West:</i> Residential Single Family 7,200	<i>West:</i> Single Family

Please refer to the Zoning Map (Attachment 2) and the Preferred Land Use Map (Attachment 3) for further details.

Grades on the site are flat to gently sloping (slopes of 15% or less). The majority of the vegetation on the site is classified as historically disturbed, currently consisting of open grass and shrub areas on the north portion of the site. The southern portion of the site contains coniferous and deciduous trees. The forested area consists of Red Alder with a shrub under story comprised

of Indian Plum, grasses, thistle, and multiple varieties of blackberry. Wetlands have been identified along portions of the eastern and northern boundary line of the site.

The proposed modified subdivision is not categorically exempt from State Environmental Policy Act (SEPA) pursuant to WAC 197-11-800 and DMMC 16.04.230; therefore, the applicant was required to submit an Environmental Review Application. Based on the evaluation of the SEPA checklist, the SEPA Official concluded that adverse impacts were possible under the proposed modified subdivision. The City subsequently issued the final threshold determination of a Mitigated Determination of Non-Significance (MDNS) on March 26, 2007. A copy of the environmental mitigation agreement is included as Attachment 4. The comment period for the MDNS notice and appeal concluded on April 10, 2007 and April 20, 2007, respectively, with no comments or appeals filed.

Approval of a preliminary modified subdivision is a Type IV land use action as defined by DMMC §18.56.060. Type IV land use actions require a public meeting with the Planning Agency and a public hearing with the City Council pursuant to DMMC § 18.56.180. On May 7, 2007, the Planning Agency conducted the required public meeting and recommended that the City Council approve the proposed subdivision. The minutes for the Planning Agency meeting are included in Attachment 5. The City Council will consider the recommendations made by Administration and the Planning Agency during the required public hearing scheduled for May 24, 2007.

Discussion:

Review of the proposed preliminary modified subdivision is to determine if the proposed project is consistent with the criteria established by DMMC § 17.20.030. The proposal may only be recommended for approval if the City Council finds that the proposed preliminary modified subdivision meets these criteria listed within Attachment 6. As authorized by DMMC § 17.20.010, the applicant has requested the following deviations to the City's subdivision regulations in DMMC § 17.36:

Subdivision Layout and Design Deviations (DMMC § 17.36)

- All lots within the subdivision will not meet the lot depth to width ratio.
- Two alleys will be built to private street standards but will serve more than four lots. Tract D will serve 17 lots and Tract H will serve 16 lots.
- The requirement to have a minimum distance of 30 feet between driveway and intersection is not met for the joint driveway of lots 54 and 55.
- The intersection of the alleys and the public ROW is less than 100 feet from the nearest intersection.
- The ROW width for South 263rd Street and 21st Place South is reduced to 50 feet from 60 feet.

Staff's evaluation concluded that the layout of the proposed modified subdivision meets or exceeds the approval criteria established by DMMC § 17.20.30. A topic-by-topic evaluation of the proposed modified subdivision's compliance with the criteria and requested deviations is provided below:

(1) COMPREHENSIVE PLAN CONSISTENCY

As required by DMMC§ 17.20.030(1) and the Growth Management Act, development must be consistent with the contents of the City of Des Moines Comprehensive Plan (Plan). This document provides policy guidance regarding land use and related matters for the City of Des Moines. The Plan includes policies and strategies to achieve the goals established by each element of the Plan. The contents of the Plan should guide the decisions of elected officials, appointed officials, City staff, property owners, and consultants.

Staff's evaluation concluded that the proposal achieves the goals established by the Land Use Element; the Transportation Element; the Conservation Element; the Capital Facilities, Utilities, and Public Services Element; Parks, Recreation, and Open Space Element; and the Housing Element of the Plan. Specific goals achieved by the proposed project are provided in Attachment 7. Selected policies and strategies established by the Plan to achieve the goals of each element are included as Attachment 8. Below is a brief synopsis of specific policies related to this development:

1. The Housing Element specifically lists the utilization of townhouse developments as a specific strategy (7-04-17) to achieve the goals and implement the policies established by the element which includes providing housing choices to different economic groups within the City of Des Moines.
2. The preliminary modified subdivision will result in a development pattern that will foster a pedestrian scale community, encouraging citizens to walk or ride bicycles consistent with goal 2-01-01; policies 2-03-05 and 2-03-07; and strategy 2-04-15 of the Plan.
3. Policy guidance provided in the Parks, Recreation, and Open Space Element directs the City to accept parks with a minimum area of a half acre (Goal 06-01-07, Policy 06-03-06, and Strategy 6-04-01(5)). Since the required park dedication is more than one half acre, the development includes the creation of a new public park. The park dedication is also consistent with Strategy 2-04-14 of the Land Use Element of the Plan.
4. Placement of the park on top of the surface water detention vault is also recommended in Strategy 6-04-01 and 6-04-02 of the Parks, Recreation, and Open Space Element of the Plan.
5. The proposal is consistent with Goals 4-01-01 and 4-01-07 Policies 4-03-23, and 4-03-10 and Strategies 4-04-01 and 4-04-02 in the Conservation Element of the Plan. Specifically, the proposal attempts to balance economic development and environmental protection as required by Policy 4-03-06 and Strategy 4-04-02.

(2) ZONING CODE COMPLIANCE

DMMC § 17.20.030(2) requires that the proposed subdivision complies with the underlying zoning dimensional requirements established by DMMC § 18.10.040, DMMC § 18.10.050, and DMMC § 18.10.060. The dimensional and design requirements established by the DMMC have been fulfilled thru the applicant's proposed layout and home designs. The dimensional requirements specify that all lots within the RA-3,600 zoning classification have a minimum lot size of 7,200 square feet and platted with a width of not less than 60 feet. However, within a townhouse development, internal lots for the purpose of individual ownership of dwellings with undivided interest in the common areas and facilities may be less than 7,200 square feet in area and less than 60 feet wide as long as the overall lot area average including common areas and facilities area per dwelling unit is not less than 3,600 square feet pursuant to DMMC § 18.10.040. The overall lot area for the proposed project is greater than 3,600 square feet. The table below provides a breakdown of the areas included in the overall lot area calculations:

NAME	AREA
Total Lot Area	202,776 SF
Total Common Interest Tracts	43,188 SF
OVERALL AVERAGE LOT AREA:	3,617 SF

As mentioned, the proposal is consistent with design requirements established by DMMC § 18.10.060. In order to demonstrate compliance the applicant submitted 6 conceptual home designs consistent with the general building design requirements (Attachment 13).

(3) SUBDIVISION DESIGN AND LAYOUT

The proposed project must also be consistent with the design and layout requirements established by DMMC § 17.36, except for those specific items requested to be deviated from as part of the modified subdivision application pursuant to DMMC § 17.20.030(3). The proposal is consistent with all requirements for lot standards, general layout, access, pedestrian ways, and utilities. Discussed below is a summary of how this application compares to City Standards for the general layout of subdivisions codified in section 17.36.020 of the DMMC:

Lot size and dimensional requirements

The average overall lot area for the proposed project is greater than 3,600 square feet; therefore, the proposed modified subdivision is consistent with the lot and dimensional requirements established by Chapter 18 of the DMMC.

Configuration

Subsection 2 of DMMC 17.36.20 requires that all lots be platted with a maximum lot width to depth ration of 1:2. The lots within the subdivision will not meet this

requirement. As part of the modified subdivision process the applicant has requested City consideration to deviate from this requirement. The intent of the section was to ensure that lots are shaped in a manner that allows reasonable use. The lots within the modified subdivision are for the placement of attached single family homes (townhouse) and are not large enough to be further subdivided in the future. Townhouses are typically designed for narrower longer lots; this width to depth ratio requirement is intended for more traditional detached single family home neighborhoods. In order to demonstrate that aesthetically pleasing homes could be constructed on the lots, the applicant produced conceptual home designs as required by DMMC § 18.10.030 (Attachment 9). Therefore, it is staff's conclusion that the shape of the lots provides reasonable use of the lot consistent with DMMC § 17.36.20.

Orientation

All side lot lines are at right angles to the street upon which the lot faces.

Frontage

All lots meet the 20' minimum frontage requirement.

Corner Lots

All corner lots within the subdivision are required to have a width five feet wider than the width required by the underlying RA-3,600 zone classification; however, a "townhouse development" type design is not required to have a minimum lot width. The intent of this section was to provide increased setbacks from the corner for safety reasons. In order to meet the intent this requirement, townhouse developments are required to provide a 10 foot setback for all corner lots pursuant to DMMC 18.10.040(5)(b)(iii). The proposed modified subdivision is consistent with this requirement.

Odd Lots

No lots within the subdivision would be classified as an odd shaped lot. However, given the type of development, setbacks for all lots are illustrated on the preliminary plat.

(4) PUBLIC INFRASTRUCTURE

DMMC § 17.36.020(4) and DMMC § 17.36.020(5) require that the proposed subdivision is in the public interest and includes adequate provisions for open spaces, drainage ways, rights-of-way, planning features that assure safe walking conditions for pedestrians, schools and parks/playgrounds. Below is a summary of the proposal's provisions for open spaces, drainage, rights-of-way, pedestrian amenities, and parks:

Right-of-Way (ROW) Improvements

Engineering staff has reviewed the Preliminary Plat Plans and a Traffic Analysis prepared by Traffic Engineers and Transportation Planners dated June 30th 2006 (Attachment 9). Based on the review of the plans, specifications and technical reports, the Engineering Division concluded that the layout of the internal roadways is consistent with the City's Street Development Standards with the following exceptions listed below.

1. The ROW width for South 263rd Street and 21st Place South is shown as 50 feet. This is less than the 60 foot ROW width required in the Des Moines Street Development Standards. Engineering does not take exception to the reduced ROW width within this modified subdivision since the proposed cross section contains all the elements traditionally found within a 60 foot ROW needed to serve vehicular and pedestrian traffic.
2. The Street Development Standards indicate that platted alley rights-of-way are discouraged on new plats. This proposal includes the use of alleys. Engineering does not take exception to the use of alleys within the PUD, provided that they must be privately owned and maintained. Tract H shall be a one way alley with traffic exiting to the cul-de-sac on South 262nd Street.
3. The street development standards indicate that a private street shall provide access to no more than 4 lots. Track D (Alley) provides access to lots 18 through 26 and lots 62 through 69, a total of 17 lots. Given that this private roadway is configured as an open ended alley, Engineering does not take exception to this proposal. Track H (Alley) provides access to lots 27 through 34 and lots 35 through 42, a total of 16 lots. This proposal is preferable given the alternative, which would result in multiple access points to South 263rd Street near the site access from Pacific Highway South. This situation is much less desirable given the added potential conflict points.
4. City of Des Moines Street Design Standards requires a minimum distance of 30 feet between driveway and intersection. This requirement is not met for the joint driveway of lots 54 and 55. Considering the fact that all the driveways on the street are joint driveways and that there seems to be no possibility of meeting the driveway space requirement for the driveway serving lots 54 and 55, Engineering accepts the location of this driveway.
5. The intersection of alley (Tract H) & 21st Place South is located 56 feet away from the intersection of South 262nd Court & 21st Place South. The intersection of alley (Tract D) & South 262nd Court is located 70 feet away from the intersection of South 262nd Court & 21st Place South. The City of Des Moines intersection spacing requirement requires a minimum of 100 feet between intersections. Engineering has reviewed other previously presented access

scenarios and considers the present layout a better option in reducing the number of traffic conflict points.

The internal roadways shall be designed and constructed consistent with the Des Moines Street Development Standards, the American Association of State Highway and Transportation Officials (AASHTO), and the Manual on Uniform Traffic Control Devices (MUTCD). The internal public roadways shall have a 25 M.P.H. design speed, and the alleys shall have a 20 MPH design speed. Traffic impact fees will be applicable on the development. Traffic impact fees will be assessed and due at the time of issuance of the building permit.

Use of a modified subdivision permits deviations from City standards; DMMC § 17.36.010 includes the authority to deviate from street standards.

The site has only one full access. From an engineering perspective given the number of lots within the development, staff feels that the site should have two full access points, and that the emergency vehicle access on the west end of the project should be converted to a full access. However, the Council had previously restricted the other access point to the site as a condition of approval for the Mitchell-Chamlian Rezone (Ord. 1371).

Drainage

Surface Water Management staff has reviewed the Preliminary Plat Plans and the Technical Information Report prepared by Daley-Morrow-Poblete, Inc dated March 25, 2006; revised June 30, 2006, October 31, 2006, and February 15, 2007 (Attachment 10). Based on the review of the plans, specifications and technical reports, staff has determined that the below described vault is consistent with the City's surface water design manual (the 2005 King County Surface Water Design Manual).

Stormwater from the site is collected and conveyed to a combined detention/treatment vault that is sized for Level 2 Flow control for detention and meets the Enhanced Water Quality Menu for treatment. The proposed location for the storm facility will be located in Tract "E" and flows from the facility will discharge directly to the storm system of Highway 99. Flows from tributary offsite areas will be collected and bypassed through the project to the wetland located in Tract "F" (where these flows currently discharge to). In order to maintain the hydroperiod of the downstream wetland, in addition to the bypass flows, 0.8 acres of onsite rooftop (non-pollution generating) runoff is discharged directly to the wetland. A preliminary runoff duration analysis was performed studying flows contributing to the wetland (both offsite and on-site) to determine the equivalent roof top area needed for the wetland. The analysis will need to be refined to include additional roof runoff to maintain the hydroperiod of the created wetland area. Alternatively, a flow splitter may be used to direct some of the post-treated flows from the storm facility to the created portion of the wetland.

The preliminary plat indicates that the pond will be placed within a tract which will be deeded to the City upon recordation of the plat in accordance with DMMC 17.36.100(2). Staff has determined that the above description of the pond is consistent with the City's surface water design manual (the 2005 King County Surface Water Design Manual).

Schools

Landmarque is located in the Federal Way School District, which has instituted an impact fee program. The impact fee program is to ensure that adequate public school facilities and improvements are available to serve new development and that new development pays a proportionate share of the cost for public facilities needed to serve the new development. Based upon the "Housing Generation Factor" established by the Federal Way School District approximately 50 elementary students, 20 junior high students, and 18 high school students will reside within the project site. Under the impact fee program separate fees will be calculated for single family and multifamily units: multifamily is defined as all townhouses and apartments and single family is defined as all detached dwelling units. The program establishes a per unit impact fee of \$856.00 for multifamily units and a per unit fee of \$3018.00 for a single family unit. Based on the number and type of units the applicant is required to pay \$62,532.00 in school impact fees. This requirement was built into the SEPA mitigation agreement (Attachment 4).

Parks

DMMC § 17.36.150 requires that the applicant requesting a subdivision develops, dedicates, and improves space for use as a public park or provides a payment in lieu of this dedication. DMMC § 17.36.150 requires that the proposal maintain the current ratio of park land to population within the City and provide for recreational needs of the future residents of the proposed subdivision. In order to maintain the existing ratio of park land and provide for future recreational needs all subdivisions are required to dedicate for recreation use a minimum of five percent of the total area within the subdivision devoted to developable lots.

Based upon the Population Local Review Worksheet for the City of Des Moines provided by the Office of Financial Management approximately 143 people will reside within the Landmarque Townhouse project site. The proposed Landmarque Townhouse project is required to provide 22,308 square feet of park space to maintain the current ratio of park land to population as required by DMMC § 17.36.150(1). The applicant has proposed to dedicate 23,040 square feet of recreational park space which exceeds the minimum requirement by 732 square feet and is approximately 11% of the total area within the subdivision devoted to developable residential lots. The table below provides a breakdown of the different areas within the proposed subdivision:

NAME	AREA	PERCENTAGE
Roads	106,910 SF	24%
Storm Water/Park Facilities	23,040 SF	11%
Common Interest Tracts	43,188 SF	5%
Wetlands	47,767 SF	11%
Residential Lots	202,776 SF	46%
Commercial Lot	13,699 SF	3%
TOTAL:	437,380 SF	100%

Since the area that will be dedicated as a park is more than a half acre, the Parks Director in consultation with the Planning, Building, and Public Works Director has decided to have the applicant dedicate and improve space for use as a public park in accordance with DMMC § 17.36.150(3).

(5) COORDINATED DEVELOPMENT

Proposed preliminary modified subdivision must provide for coordinated development with adjoining properties or future development of adjoining properties including but not limited to provisions for improved or shared access where appropriate in accordance with DMMC § 17.16.020(6). Review of the proposed subdivision was also coordinated with the neighboring jurisdiction of Kent.

City of Des Moines

As part of the modified subdivision the only opportunity for additional connection would have been to connect to 20th Avenue South; however, access to this project via 20th Avenue South was restricted to emergency vehicles as a condition of approval for the Mitchell/Chamlian Rezone passed in 2006 (Ord. 1371).

City of Kent

Copies of the site plan were provided to the City of Kent during the review of the preliminary modified subdivision since the City of Des Moines jurisdictional boundaries end on the western side of Pacific Highway South. On August 15, 2006, the City of Des Moines received an email from the City of Kent's Engineering Department which concurred with the proposed intersection of South 263rd Court and Pacific Highway South. The applicant will not be required to install frontage improvements along Pacific Highways as the ultimate improvements have already been installed by the City of Kent.

(6) ENVIRONMENTALLY CRITICAL AREAS

WETLANDS

A wetland delineation report was prepared by Sewall Wetland Consulting, Inc. which confirmed the existence of wetlands on the project site (Attachment 11). The delineation methodology was consistent with both the Washington State Identification and Delineation Manual (WADOE, March 1997) and the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1989). This delineation methodology utilized a combination of field indicators to determine the presence of the wetlands including vegetation, soils, and hydrology. Based on this methodology, two wetlands were located on the project site and identified as Wetland A and Wetland B.

Recently the City adopted Ordinance 1400 which repealed the City's previous Environmental regulations and adopted new regulations. This project was submitted prior to the new regulations in April 2006; therefore, the project is vested under the development regulations in effect at that time. The evaluation of each wetland provided below is based on the proposal's compliance with the City's Environmentally Sensitive Area Regulations in effect in April of 2006.

Wetland A

Wetland A is an isolated 9,021 square foot scrub-shrub wetland which drains into a culvert under Pacific Highway South and subsequently connects to the head waters of Massey Creek. Wetland A appears to be the remnant of a larger wetland that was bisected by Pacific Highway. Vegetation within Wetland A consists mainly of Red Osier dogwood, willow, and Himalayan. According to DMMC § 18.04.663, Wetland A is considered an "Important" wetland due to its size (less than 1 acre), presence of two vegetative classes, and the fact that it is not located in a stream corridor. Pursuant to DMMC § 18.86.070, "Important" wetlands require a 35 foot buffer measured from the wetland edge. The applicant has proposed to maintain the required 35 foot buffer and place the wetland and corresponding buffer within an environmental sensitive area tract as required by DMMC § 17.36.160 and DMMC § 18.86.110.

Wetland B

Wetland B is an isolated 9,113 square foot forested and scrub-shrub wetland. Vegetation within the Wetland B consists mainly of one black cotton wood, red-osier dogwood, sitka willow, red alder, hardhack, softrush, and creeping butter cup. According to DMMC § 18.04.663, Wetland B is considered an "Important" wetland due to its size (less than 1 acre), presence of two vegetative classes, and the fact that it is not located in a stream corridor. Pursuant to DMMC § 18.86.070 "Important" wetlands require a 35 foot buffer measured from the wetland edge.

Wetland B has been degraded by previous development and other human activity. The portion of the wetland and corresponding buffer located on the adjacent properties has been completely removed as a result of Kent's Regional Detention Facility and the parking lot for the church adjacent to the northern property line. As a result of these developments, there is not area around the wetland to provide a sufficient buffer as required by DMMC § 18.86.070.

If any portion of an environmentally sensitive area has been legally altered from its natural state and the functional value has been significantly disrupted, the applicant may propose to develop within the altered area pursuant to DMMC § 18.86.094(6) (Attachment 12). Fragmentation of the wetland could have occurred as early as 1962 when the school and church were built on the adjacent property (Tax Parcel 2822049025). Additionally, the other portion of the wetland and corresponding buffer along the easterly property line was further degraded by development of Kent's Regional Detention Facility in approximately 2003. After conducting a site visit and review of historic orthophotos, staff concluded that the alteration to the wetland area and corresponding buffer along the northerly property line occurred prior to the City of Des Moines adoption of the Environmentally Sensitive Areas code (DMMC § 18.86) in 1990. The portion of the wetland and corresponding buffer along the easterly property line was legally altered after the City of Des Moines adoption of the Environmentally Sensitive Areas code (DMMC § 18.86).

After reviewing the geographical and environmental conditions of the site, the Planning, Building, and Public Works Director has determined that a suitable compensation area does exist on-site. The applicant will provide on-site mitigation around Wetland A. The conceptual mitigation plan proposes to create one large quality wetland out of two smaller degraded wetlands by creating 9,115 square feet of additional wetland around Wetland A and enhance Wetland A by replacing invasive non-native plants with native wetland plants. In addition the 35 foot buffer around the existing and created wetland will be cleared of all invasive non-native plants and enhanced with native trees and shrub plantings.

The conceptual mitigation plan will result in "no net loss" of wetland function and value consistent with the intent of the City's Environment Sensitive Area Regulations. In addition, the conceptual mitigation plan attempts to increase the function and value of the wetland by restoring and enhancing degrading functions and provide a buffer of a sufficient width to protect the environmental feature.

Alternatives:

The City Council has two other alternatives in addition to the recommended action:

- (1) The City Council may approve the proposed preliminary modified subdivision with additional conditions; however, any changes must be supported by additions to the findings of fact. The information must be made clear for the public record.

- (2) The City Council may deny the preliminary modified subdivision; however, new findings of fact would have to be prepared to support this decision. Reasoning for such a decision would have to be made clear for the public record.

Financial Impact:

The modified subdivision would result in the development of 68 new single family homes and 1 commercial lot which will provide additional recurring property tax revenue to the City of Des Moines. Collection of the property tax revenue will contribute to maintaining an adequate residential tax base consistent with Goal 8-01-01(2) of the Plan. Additionally, the City would receive tax monies on the construction materials for both the homes and the required civil improvements. The City will also receive traffic impact fees at the time of issuance of the building permits for the single family residences and commercial lot. Property taxes and fees collected are expected to offset City expenditures related to typical residential and commercial services and uses. The City will have to maintain the park and incur associated cost for that work.

Recommendation/Conclusion:

Properly scaled projects contribute to a clearly defined sense of place and entice pedestrian activities. Creating pedestrian friendly developments has been established as a priority through the adoption of the Plan (Policy 3-03-08, Strategy 3-04-03 and Strategy 3-04-07). During the development of this project, significant attention was focused on the scale of the project and the future design of residences. As a result, additional pedestrian amenities are provided in the Landmarque modified subdivision that are not normally found in a standard subdivision as required by DMMC 17.20.030(7). These amenities include:

1. An increased relationship between the public and private realms through the placement of the homes in close proximity to the sidewalk.
2. The visual impact of the automobile has been de-emphasized through the use of alley lot homes and street-facing garages located back behind front porches.
3. The developer has agreed to incorporate the 14,406 square feet of open space contained in Tract G into Tract E for use as part of the public park. With the inclusion of Tract G there would be a significant amount of active and passive open space strategically placed together to provide one large area for pedestrians to engage in recreational opportunities. Approximately 85,000 square feet or 20% of the site has been set aside as an open active and passive recreational area.

Design of infrastructure improvements has been done in such a manner as to enhance the community not just on a functional level but on a visual level. For example, instead of a standard stormwater pond, a storm detention vault will be constructed with a 23,000 square foot City-owned park on top of the vault.

The Landmarque development would result a subdivision that is superior to a traditional subdivision by applying a more creative approach which will result in a more efficient, aesthetic, and desirable community.

Staff concludes that the proposed modified is consistent with DMMC § 17.20 and DMMC § 18.10 after an exhaustive evaluation of the plans, environmental reports, and specifications. Staff recommends that the proposed modified subdivision be approved by the City Council; provided the following conditions of approval are imposed:

1. The applicant shall comply with the SEPA Environmental Mitigation Agreement dated March 26, 2007
2. Submittal of a complete landscaping plan consistent with the conceptual landscaping elements included in this packet.
3. The applicant will combine tract "G" into tract "E" in order to form one continuous 37,446 square feet (0.86 acre) City owned park.
4. Homes constructed within the proposed subdivision will be consistent with the conceptual home designs included in this packet.
5. When the same or similar building designs are located on the same block, the developer shall differentiate that design through the use of at least two different building materials and different color schemes.
6. Submittal of a complete wetland mitigation plan consistent with the conceptual wetland mitigation plan dated November 7, 2006 provided by the applicant.
7. The applicant shall provide a deed for the surface water detention/park tract and the environmental sensitive area tract to transfer the ownership of the tracts to the City of Des Moines prior to City Council review of the final plat.

Concurrence:

The Des Moines Parks and Recreation Department has concurred with the decision install the park on the detention vault and combined Tract E and Tract G to form on 37,446 square foot park. The developer's proposed park meets the criteria for such a facility in the Woodmont East service area as provided in the Parks, Recreation and Senior Services Master Plan adopted by City Council in December, 2003.

South King Fire and Rescue has reviewed the proposed modified subdivision and has approved the layout of the preliminary plat.

The Planning Agency met on May 7, 2007 to review the Landmarque subdivision. There were no public comments at the meeting. The Planning Agency recommended that the Council approve the preliminary PUD subdivision. The Planning Agency voted 4-1 in this recommendation.



City of Des Moines Orthophoto Map

Legend

- Des Moines City Limits
- Landmarque

ZONING

- Residential
 - SF Single Family
 - MF Multifamily
 - T Townhome
- Commercial
 - COM Commercial
 - PF Public Facility

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Des Moines, WA 98198-6398
Phone: (206) 870-7576
www.desmoineswa.gov



— Des Moines City Limits
□ Landmarque

RS-7200
 Residential: Single Family 7200
 RA-3600
 Residential: Townhouse & Duplex
 Commercial
 C-C
 Community Commercial

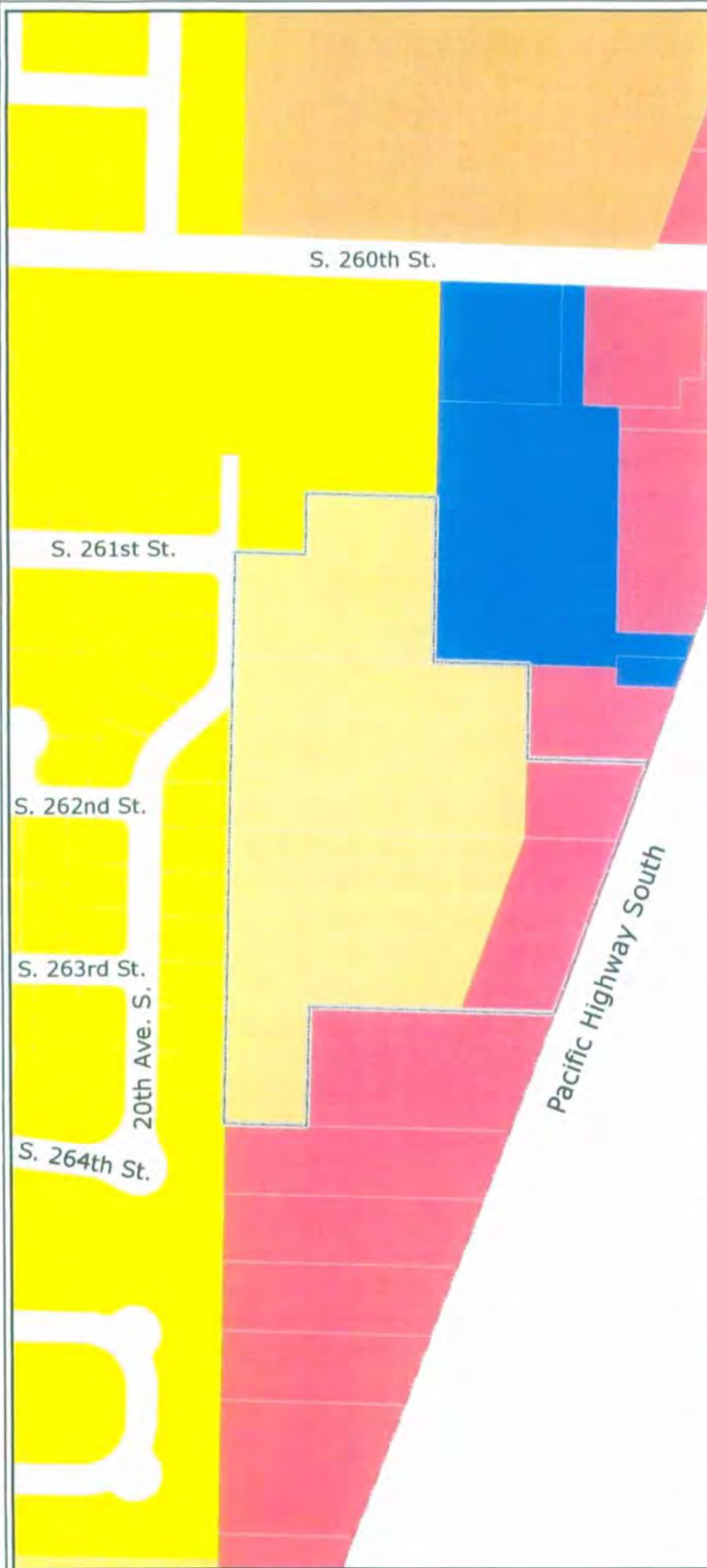
Description	Onbalance	Effective Date
Adoption of digital rating map.	1235	May 1, 1999
Repealing of zones	1237	May 17, 1999
Bus route Plans (B-F) revision	1261	June 21, 2000
Plan's Route revision	1267	July 25, 2000
Norfolk River conservation	1270	September 1, 2000
Adoption of GIS map	1269	October 11, 2001
Kitchen/Chamber revision	1371	January 11, 2003
Norfolk River	1397	March 1, 2003

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City of Des Moines Comprehensive Plan Designations

Legend

- Des Moines City Limits
- Landmarque

ZONING

Residential

- SF
Single Family
- MF
Multifamily
- T
Townhome

Commercial

- COM
Commercial
- PF
Public Facility

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ENVIRONMENTAL MITIGATION AGREEMENT

Project File No: LUA06-014
Project Name: Landmarque Townhouse Development
Project Address: Pacific Highway and South 263rd Street
Owners: Mitchell Family LLC.
Attn: Larry King
PO Box 26116
Federal Way, WA 98093
(253) 927-6116

Vahan & Anoush Chamlian
Attn: Larry King
PO Box 26116
Federal Way, WA 98093
(253) 927-6116
Contact/Applicant: Landmark Homes
Attn: David Litowitz
PO Box 26116
Federal Way, WA 98093
(253) 927-6116
Staff Contact: Jason Sullivan; Land Use Planner II
Date of Decision: March 26, 2007

THIS AGREEMENT is entered into by and between the City of Des Moines, a municipal corporation hereinafter referred to as the "City" and Landmark Homes LLC hereinafter referred to as the "Developer".

WHEREAS, this agreement is executed pursuant to Chapter 43.21 RCW, the State Environmental Policy Act (SEPA), and Title 16 Des Moines Municipal Code, to provide for mitigation of existing and known environmental impacts associated with the development hereinafter described. This agreement is not, and shall not be construed as a voluntary agreement pursuant to RCW 82.02.020, and the provisions of RCW 82.02.020 shall not be applied hereto. This agreement does not preclude any evaluation and determination by the City of Des Moines upon later actions or proposals undertaken by the Developer that may require a determination of significance and environmental review under SEPA;

WHEREAS, the property located in the City is further legally described as:

TAX PARCEL # 2822049067

THAT PORTION OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 28, TOWNSHIP 22 NORTH, RANGE 4 EAST, W.M., LYING WESTERLY OF STATE ROAD NO. 1, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER;

THENCE SOUTH 88°03'31" EAST ALONG THE NORTH LINE OF SAID SOUTH HALF A DISTANCE OF 490.0 FEET;

THENCE SOUTH 03°05'51" WEST A DISTANCE OF 160.03 FEET;

THENCE SOUTH 88°10'16" EAST A DISTANCE OF 196.56 FEET TO A POINT ON THE WESTERLY MARGIN OF PACIFIC HIGHWAY SOUTH (STATE ROAD NO. 1);

GF

DL

THENCE ALONG SAID WESTERLY MARGIN SOUTH 20°43'16" WEST A DISTANCE OF 134.70 FEET TO THE NORTH LINE OF THE SOUTH 375.00 FEET, AS MEASURED ALONG THE WEST UNE OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 28;

THENCE NORTH 88°10'16" WEST ALONG THE NORTH LINE OF SAID SOUTH 375.00 FEET A DISTANCE OF 636.78 FEET TO THE WEST UNE OF SAID SOUTH HALF;

THENCE NORTH ALONG SAID WEST UNE 288.42 FEET, MORE OR LESS, TO THE POINT OF BEGINNING. AU_ SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

TAX PARCEL # 2822049209

THE SOUTH 375 FEET; AS MEASURED ALONG THE WEST LINE OF THAT PORTION OF THAT PORTION OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 28, TOWNSHIP 22 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON; LYING WESTERLY OF PACIFIC HIGHWAY SOUTH (SR-99), AND TRACT 8, SECOMA HI-WAY TRACTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 37 OF PLATS, PAGE 42, IN KING COUNTY,

WASHINGTON;

EXCEPT THE FOLLOWING DESCRIBED PARCEL OF LAND:

BEGINNING AT THE SOUTHEAST CORNER OF SAID TRACT 8;

THENCE NORTH 88°10'17" WEST ALONG THE SOUTH LINE THEREOF A DISTANCE OF 331.14 FEET; THENCE NORTH 01°08'58" EAST PARALLEL WITH THE WEST UNE OF SAID TRACT 8 A DISTANCE OF 200.01 FEET;

THENCE SOUTH 88°10'17" EAST PARALLEL WITH THE SOUTH UNE OF SAID TRACT 8 A DISTANCE OF 401.96 FEET TO THE WESTERLY MARGIN OF SAID PACIFIC HIGHWAY SOUTH;

THENCE SOUTH 20°43'24" WEST ALONG SAID MARGIN A DISTANCE OF 211.39 FEET TO THE POINT OF BEGINNING.

(ALSO KNOWN AS LOT B OF BOUNDARY LINE ADJUSTMENT RECORDED UNDER RECORDING NUMBER 9711249013.)

TAX PARCEL # 2822049233

THE WEST HALF OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 28, TOWNSHIP 22 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON; EXCEPT THE NORTH 390 FEET THEREOF;

AND EXCEPT THE WEST 115 FEET OF THE SOUTH 100 FEET OF THE NORTH 490 FEET OF SAID WEST HALF.

WHEREAS, the Developer has submitted a Modified Subdivision application in order to subdivide 10.06 acres into 66 attached single family lots (townhouses), 2 detached single family lots, and 1 commercial lot;

WHEREAS, the residential lots created by the subdivision will have an average size of approximately 2982 square feet;

WHEREAS, the overall lot area as calculated per DMMC 18.10.040 is 3,600 square feet;

WHEREAS, based upon the Population Local Review Worksheet for the City of Des Moines provided by the Office of Financial Management approximately 183 people (68 lots * 2.7 individuals) will reside within the project site;

WHEREAS, the proposed townhouse subdivision is served by the Federal Way School District;

WHEREAS, based upon the "Housing Generation Factor" established by the Federal Way School District approximately 50 elementary students, 20 junior high students, and 18 high school students will reside within the project site;

WHEREAS, the Federal Way School district has adopted an impact fee program to ensure that adequate public school facilities and improvements are available to serve the new development;

GF AA

DL Dih.

WHEREAS, the Federal Way School district has adopted an impact fee program to establish standards whereby new development pays a proportionate share of the cost for public facilities needed to serve the new development;

WHEREAS, the Federal Way School district has adopted an impact fee program to ensure that the school impact fees are imposed through established procedures and criteria so that specific developments do not pay arbitrary fees or duplicative fees for the same impact;

WHEREAS, the Federal Way School district has adopted an impact fee program to provide needed funding for growth-related school improvements;

WHEREAS, the Federal Way School district has adopted an impact fee program which established a multifamily unit impact fee of \$856.00 per unit;

WHEREAS, the Federal Way School district has adopted an impact fee program which established a single family unit impact fee of \$3018.00 per unit;

WHEREAS, the Federal Way School district has adopted an impact fee program which defines multifamily as all townhouses and apartments;

WHEREAS, the Federal Way School district has adopted an impact fee program which defines single family as all detached dwelling units;

WHEREAS, the Federal Way School district has adopted an impact fee program which requires that separate fees will be calculated for single family and multifamily units;

WHEREAS, the City has reviewed a study entitled, "Landmarque Wetland Analysis Report and Concept Mitigation" (dated December 9, 2005) and a revised study entitled "Landmarque Wetland Analysis Report and Concept Mitigation" (dated November 7, 2006) prepared by Sewell Wetland Consulting (formerly B-12 Wetland Consulting Inc.) which delineated and established mitigation measures for the wetlands located on the project site;

WHEREAS, the applicant has proposed to fill a 9,113 square foot wetland labeled as Wetland "B" on the proposed development plans;

WHEREAS, wetland fills under the jurisdiction of the Army Corps of Engineers require compliance with section 404 of the Clean Water Act;

WHEREAS, wetland fills under the jurisdiction of the Army Corps of Engineers larger than 4,356 square feet are not covered by the Army Corps of Engineers Nationwide Permit 18;

WHEREAS, the Department of Ecology has placed Regional Conditions on Nationwide Permits;

WHEREAS, the City has reviewed a study entitled, "Landmarque Traffic Impact Analysis" (dated June 30, 2006) and a mitigation confirmation letter (dated June 23, 2006) prepared by Traffic Engineers and Transportation Planners which evaluated the traffic impacts associated with the project;

WHEREAS, the City has reviewed a memo entitled "Storm Vault Lateral Pressure and Foundation Design Criteria, Landmarque Plat, Pacific Highway South, Des Moines, WA" (dated March 30, 2006) prepared by GeoResources, LLC., which evaluated surface and subsurface conditions at the project site in order to develop geotechnical recommendations and design criteria;

WHEREAS, the Developer is required to obtain a Clearing, Grading and Filling Permit from the City Planning, Building and Public Works Department for construction of the required infrastructure and the residential structures which emphasizes land development practices that result in a minimal disturbance to the City's vegetation and soils by providing protection to reduce degradation of streams or other water bodies located in and adjacent to the project site via scouring, siltation, and water pollution;

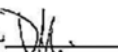
WHEREAS, Native American and other historically and culturally significant artifacts have been uncovered within the City of Des Moines;

WHEREAS, the City of Des Moines Planning, Building, and Public Works Department has determined that the proposed development on the subject property will not result in probable significant adverse environmental impacts and that those environmental impacts identified in the SEPA application will be addressed by entering into an agreement to mitigate such impacts;

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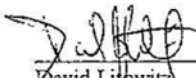
NOW, THEREFORE, the City and Developer agree that the following mitigation measures shall be employed by the Developer to ensure that probable adverse environmental impacts created by the proposed project are minimized or eliminated.

1. The Developer is required to comply with all Federal and State regulations regarding the fill of the wetland labeled "Wetland B" on the development plans. If there are Federal or State permits required to fill the wetland, the applicant must obtain those permits prior to the City's approval of the civil engineering plans
2. The Developer shall send a "Notice of Intent to Commence Work" a minimum of 30 days prior to commencing the grading operations needed to install the required infrastructure improvements together with a project work schedule including the phasing of the construction activity, and a reduced scale map identifying the project to all property owners within 300 feet of the project site and the City.
3. The Developer shall properly dispose of the anticipated unusable excavated soils to the satisfaction of the City of Des Moines. The developer shall submit a grading plan that accurately reflects the amounts and locations of cuts and fills. The plan will also identify the amount of any export soils and a proper disposal method and/or disposal site prior to issuance of the City Grading Permit.
4. The Developer will pay \$62,532.00 in school impact fees calculated in the following manner:
 - a) \$56,496.00 for the townhouses (66 * \$856.00)
 - b) \$6036.00 for the detached dwelling units (2 * \$3018.00)
5. Should the Developer or its contractor uncover any landmarks or evidence of archeological, scientific or cultural importance, the Developer shall cease all work and contact the City of Des Moines and the Washington State Department of Historic Preservation.
6. Should a term, provision, condition or other portion of the Agreement be held to be inoperative, invalid, or void, the same shall not affect any other term, provision, condition or other portion of this Agreement; and the remainder of this Agreement shall be effective as if such term, provision, condition or portion had not been contained herein.

CITY:


Grant Fredricks, P.E.
Planning, Building, and Public Works Director
City of Des Moines

DEVELOPER:

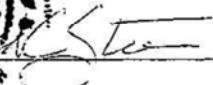

David Litowitz
Landmark Homes, Inc.

STATE OF WASHINGTON)

) ss.

COUNTY OF King)

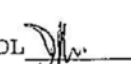
I, the undersigned, a notary public in and for the State of Washington, hereby certify that on this 21st day of March, 2002, David Litowitz personally appeared before me, to me known as the individual(s) empowered to execute the foregoing instrument, and acknowledged that they signed and executed the same as their free and voluntary act and deed for the uses and purposes therein mentioned.



Notary Public in and for the State of Washington,

Residing at King County

My commission expires 7/29/2002

GF 

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DRAFT MINUTES
DES MOINES PLANNING AGENCY REGULAR MEETING

7:00 p.m.

May 7, 2007

At 7:09 p.m., Chair Proulx called to order the Des Moines Planning Agency in the City Council Chambers, 21630 11th Avenue South, Suite B.

PLEDGE OF ALLEGIANCE led by Agency Member Polwarth.

ROLL CALL—Present: Chair Proulx, Vice Chair Polwarth, Agency Members Riecks, Savage, and Prindle. Staff included Development Services Manager Robert Ruth, Planner II Jason Sullivan and Planning Aide Dave Steen, Agency Clerk.

OATH OF OFFICE—Development Services Manager Ruth administered the Oath of Office to the Agency's new appointee, Cass Prindle.

MINUTES: Minutes of the February 5, 2007 meeting were available for review.

MOTION by Agency Member Savage, seconded by Agency Member Riecks, and passed unanimously to adopt the minutes of the February 5, 2007 meeting.

CORRESPONDENCE: None

PUBLIC COMMENT: None

ADMINISTRATION REPORTS:

1. Development Activity Map/Report: Development Services Manager Ruth called attention to the new "1st Quarter 2007" map and highlighted a few of the 38 projects listed on the map. He also called attention to the Development Services portion of the City Manager's report on the City website each month, where more detail is available on all these projects.
2. Blueberry Lane: Mr. Ruth reported that the City Council adopted the Blueberry Lane subdivision after the Planning Agency had recommended that action.
3. Agency member recruitment: Development Services Manager Ruth asked for any input from Agency members. Agency Member Savage remarked that he responded with interest in the Planning Agency when he saw an advertisement in City Currents. He suggested such an ad be placed there if it has not been to date.
4. King County/METRO Transit Service Planning for Des Moines: Two visitors from King County/METRO Transit Service, Jack Latiman and David Kanti, reported on anticipated service improvements for the Des Moines area. Three particular routes that will be impacted by "Transit Now" will be 121/131 to Seattle through the Burien Transit Center, Pacific Highway South (service increased to every 10-15 minutes all day), and Route 166 from Kent to Des Moines (which might be lengthened to go to the Burien Transit Center).

5. Agency Member Question: Agency Member Savage sought clarification about the Agency's task, especially as Des Moines becomes "built out." He asked whether there would come a time when the Agency's job would be to tell developers they could not do any further subdividing and developing. Development Services Manager Ruth commented that the zoning and subdivision laws would be there to guide any development into the future, but acknowledged that the City is in a critical time for decisions about whether Des Moines should stay the way it is or begin to allow changes that would bring more urbanization and density. He mentioned that Planning Manager Denise Lathrop has the task of staying up with Zoning Code updates and neighborhood-by-neighborhood Des Moines Comprehensive Plan update considerations, which are due to happen every few years. He said it was within those processes that the City Council makes its decisions about the future of development in Des Moines.

OLD BUSINESS—None

NEW BUSINESS

Preliminary Plat for Landmarque: A proposed 68 lot Attached Single-Family Residential Townhome Modified Subdivision with adjoining commercial parcel

Land Use Planner II Jason Sullivan reviewed Staff's reasons for recommending the Landmarque Modified Subdivision with seven conditions of approval. He mentioned that this property would look familiar because the Agency had recommended a rezone to City Council which was enacted under ordinance 1372 in January 2006. He pointed out that the modifications requested would increase the quality of the subdivision. Regarding Condition 4 (Tract I), Planner Sullivan noted that the architect had brought some changes to present at this meeting in hope of resolving the design problems in the south end of the development.

Responding to questions from the Agency, Planner Sullivan pointed out:

- That the area would be in the Federal Way School District and that it was close enough for kids to walk to Woodmont Elementary to the west.
- That the two-acre passive/active recreational area would be accessible to the neighborhood from the west on a sidewalk coming the through the boundary and going directly through to the park.

Civil Engineer I for Transportation Rohini Nair confirmed that the subdivision, while being at the high end of numbers of units for a "single entry" development, it still was a good project based on street standards of the City and general transportation engineering practice.

Bob Mickey, the applicant's architect, brought drawings redesigning the four-plex on lots 45 through 48. He pointed out that he decreased the amount of pavement, increased the grassy back yards of the units and designed each of the units to have

its own look and feel, meeting the design standards that had been communicated by City staff. He offered his new drawing as an amendment that he hoped would take away the need for Condition 4.

MOTION by Agency Member Savage, seconded by Agency Member Polwarth and passed with a 4-1 majority (Agency Member Riecks opposed), to recommend that the City Council approve the preliminary modified subdivision entitled Landmarque subject to the mitigations terms identified in the SEPA mitigation agreement included as Attachment 4 and the seven additional modified conditions of approval included in the May 7, 2007 administration report.

NEXT MEETING DATE—June 4, 2007

Development Services Manager Ruth indicated that projects do not seem to be progressing so that any business would be ready for June 4, 2007. He said it was possible the Agency would not need to meet again until July 2007.

ADJOURNMENT

MOTION by Agency Member Savage, seconded by Agency Member Prindle, and passed unanimously, to adjourn the meeting at 9:05 p.m.

Respectfully Submitted,

David Steen
Planning Aide and Agency Clerk

MODIFIED SUBDIVISION CRITERIA

(DMMC § 17.20.030)

- (1) It is consistent with the intent of the comprehensive plan, zoning code, and shoreline master program; and
- (2) All lots within a subdivision meet the lot area and lot width requirements for the zone classification assigned to the property proposed to be subdivided; and
- (3) Except for those requirements specifically requested by the applicant to be modified, it is consistent with the applicable provisions of chapter 17.36 DMMC; and
- (4) There are adequate provisions for open spaces, drainage ways, rights-of-way, sidewalks, and other planning features that assure safe walking conditions for pedestrians, including students who walk to and from school, easements, water supplies, sanitary waste, fire protection, power service, parks, playgrounds, and schools; and
- (5) It serves the public use and interest and is consistent with the public health, safety, and welfare. The city council shall be guided by the policy and standards and may exercise the powers and authority set forth in chapter 58.17 RCW, as presently constituted or as may be subsequently amended; and
- (6) The proposed modified subdivision provides for coordinated development with adjoining properties or future development of adjoining properties including but not limited to provisions for improved or shared access where appropriate; and
- (7) The applicant has demonstrated that the proposal includes design features or improvements which are beneficial to the public, typically not found in traditional subdivision proposals, and equivalent in scale or value to the improvements or requirements from which the proposal deviates; and
- (8) In subdivisions containing tracts for wetlands, streams, or required buffers, as required by DMMC 17.36.160, the minimum lot size established by Title 18 DMMC for the zone classification assigned to the property proposed to be subdivided may be reduced, provided:
 - (a) The number of lots within the subdivision shall be no more than allowed by Title 18 DMMC under the provisions for limited density transfer for environmentally sensitive areas; and
 - (b) Adequate recreation area shall be provided on each lot or by establishing a separate recreation tract in addition to that required by DMMC 17.36.150.

COMPREHENSIVE PLAN GOALS: **SELECTIVE EXCERPTS**

The Des Moines Comprehensive Plan provides the policies for future development within Des Moines. Chapters 2, 4, 5, 6, 7 of the Comprehensive Plan provide specific guidance for the development in the area. Below is a list of the applicable goals within those chapters:

2-01-01 Preserve and enhance the diverse residential neighborhoods, of the community and serve them with vibrant business districts, open space, recreational facilities, affordable housing, and other supportive land uses; protect environmentally sensitive areas, and promote economic development.

3-01-01 To create an efficient and safe transportation system within, through, and around Des Moines, that provides mobility for future motorists, pedestrians, bicyclists, and transit patrons

4-01-01 To protect, improve, and sustain environmental quality through best management practices and the use of best available science

4-01-07 To protect all streams and wetlands that are in the public interest

5-01-01 To ensure adequate public facilities appropriate for the delivery of public services and utilities to accommodate the demand associated with current and future land uses. Such services and utilities should be provided in a manner that maximizes public safety and minimizes adverse environmental impacts.

6-01-06 Utilize a ratio of 8.5 acres per 1,000 population combined park land (including mini, neighborhood, community, special use, sports fields/complexes, trails and pathways) as a general guide in the acquisition of park lands. Conservancy parks and open space which are typically undeveloped, have a great value to the community but may not include significant opportunities for recreational use and therefore are not included in the ratio

6-01-07 Ensure community recreational needs are considered during planning stages of all multifamily residential development, subdivisions, planned unit development and business park development. The minimum acceptable land area for subdivision park development is 0.5 acres of land (mini-park). Fee in Lieu may be used in those situations where the minimum land requirement cannot be met. Development should be combined with adjacent recreational, open space or other municipal facility. Joint use of such recreation areas should be encouraged. Design and development of such projects should be coordinated with the Parks, Recreation and Senior Services Department as part of the building permit process.

7-01-01 Encourage the development, preservation, or replacement of housing stock that is affordable to all economic segments of the community.

8-01-01 Residential Neighborhood Preservation

- (1) To continue to provide residents with stable and relatively quiet residential neighborhoods.
- (2) To maintain an adequate residential tax base.
- (3) To ensure that residential neighborhoods are protected from undue adverse impacts associated with incompatible land uses or transportation facilities including, but not limited to, noise, air and water pollution, glare, excessive traffic, and inadequate on-site parking.
- (4) To ensure that residential neighborhoods are identified and protected from detrimental environmental noise levels.
- (5) To ensure that residential streets are protected from heavy commercial traffic that inhibits the free flow of traffic or exceeds prescribed weight limits.

COMPREHENSIVE PLAN POLICIES & STRATEGIES: **SELECTIVE EXCERPTS**

The Des Moines Comprehensive Plan provides the policies for future development within Des Moines. Chapters 2, 4, 6, and 7 of the Comprehensive Plan provide specific guidance for the development in the area. Below is a list of the applicable policies and strategies within those chapters:

2-03-05 Promote a land use pattern, scale, and density that supports public transportation services and encourages people to walk and bicycle, as well as provide convenient and safe automobile usage.

2-03-07 Consider townhouse/duplex development in areas that:

- (1) Are transitional between single family and higher intensity uses;
- (2) Do not have a dominant pattern of existing and adequately maintained detached single family dwellings; and
- (3) Are not suitable for future detached single family development; or Are designated for multifamily development

2-04-14 Require that new development maintain and enhance on-site open spaces, and provide on-site recreation facilities in new subdivisions and multifamily developments or pay appropriate in-lieu fees as required by the DMMC.

2-04-015 Seek to minimize negative impacts of new development on neighborhoods by providing uniform standards at the interface of incompatible land uses which address, but are not limited to, the following: site access and circulation; structure height, bulk, and scale; preservation of views; separation of buildings; landscaping; density; and noise buffering

3-03-08 Provide facilities to accommodate safe pedestrian and bicycle movement y appropriate in-lieu fees as required by the DMMC.

3-04-03 Pedestrians and Bicycles

- (1) Require that new roadway construction, reconstruction, or widening include sidewalks that are separated by grade and/or distance from vehicular traffic lanes.
- (2) Construct/maintain adequate sidewalks along streets within the Downtown Neighborhood to create a safe and attractive pedestrian environment. Incorporate street furniture such as benches, landscaping, attractive light standards, drinking fountains, bicycle racks, and public art that enhance the attractiveness of the downtown as a pedestrian environment.

- (3) Identify pedestrian corridors linking neighborhoods to schools, parks, transit routes, and businesses. Give high priority to constructing sidewalks and walkways within those corridors where existing pedestrian facilities are unsafe or indirect.
- (4) Construct sloped ramp curbing at all pedestrian street crossings in order to accommodate the needs of the elderly and the physically challenged.
- (5) Identify convenient and safe bicycle corridors that support the use of bicycles as a means of general transportation as well as a recreational activity. Within bicycle corridors, construct new roadways with sufficient width to allow for safe bicycling. Where possible, separate bicycle lanes from sidewalks and pedestrian trails.
- (6) Encourage or require the installation of bicycle racks within new and existing school, multifamily, and commercial developments where appropriate. Require bicycle racks that accept standard types of bicycle locks.
- (7) Require new commercial and residential developments to construct walkways that provide safe and convenient pedestrian linkages with adjacent streets.

3-04-07 **Miscellaneous**

- (1) Incorporate street trees and landscaping in the construction of new roadways to visually soften the expanse of paving, enhance the compatibility of roads with adjacent development, and improve pedestrian safety by separating vehicular and pedestrian circulation.
- (2) Require developers to maintain landscaping when required as part of a subdivision, commercial project, or other development.
- (3) Design roads and other transportation facilities to fit the character of the neighborhoods through which they pass.
- (4) Construct roads and other transportation facilities to minimize adverse impacts upon surface water runoff, drainage patterns, and environmentally sensitive areas.
- (5) Phase construction of roadway and other transportation facilities to minimize any inconvenience to and negative impact upon adjacent property owners.
- (6) Coordinate the construction of roadways and utilities to avoid the need for road repairs resulting from utility construction after road construction.

- (7) Actively enforce traffic codes, including those affecting pedestrians and bicyclists.
- (8) Conduct public meetings and hearings prior to and during the design of major transportation facilities, to inform the public and to gather public input into the design.
- (9) Incorporate sound absorption devices, landscaping, earthen berms and other natural or artificial features that help mitigate the adverse noise impacts generated by transportation facilities.

4-03-06 Balance social, economic, and environmental goals to land use planning activities.

4-03-10 Regulate public and private development proposals in ways to insure that the valuable functions of natural resources are preserved, restored, or improved

4-03-19 Manage surface water using a watershed approach, with responsibility shared among the City of Des Moines and affected jurisdictions. Emphasize educational programs and implementation of Best Management Practices to reduce pollution entering surface waters.

4-03-23 Ensure that stream and wetland buffers be of adequate size to protect critical wildlife species and habitat.

4-04-01 Environmentally Critical Areas

- (1) Identify environmentally critical areas and promulgate performance standards and development regulations for any proposed developments within or adjacent to them.
- (2) Develop and update regulations on development in wetlands and streams, and require an undevelopable buffer of preferably native vegetation adjacent to them that is adequate in size to preserve the natural and beneficial values served by wetlands and streams.
- (3) The City of Des Moines shall evaluate programs and regulations to determine their effectiveness in contributing to ESA listed species conservation and recovery, and shall update and enhance programs and plans where appropriate including evaluation of the Zoning Code, the Critical Areas Ordinance, the Shoreline Master Program, the clearing and grading regulations, the landscaping regulations, best management practices for vegetation management and use of insecticides, herbicides and fungicides. The City of Des Moines shall amend these regulations, plans and best management practices to enhance their effectiveness in protecting and restoring salmonid habitat, taking into consideration the model program developed by the Tri-County Salmon Conservation Coalition and the recommendations of shared strategy.

- (4) Require that development proposals contain measures to stabilize soils, hillsides, bluffs and ravine sidewalls and promote wildlife habitat by retaining critical areas of existing native vegetation.
- (5) Regulate development on bluffs and ravine sidewalls, and require a buffer of undisturbed native vegetation adjacent to them that is adequate in size to insure human safety, health and welfare and to restore and preserve other functions served by bluffs and ravines.
- (6) Restrict development proposals on potentially unstable land, such as areas with erosion, landslide, and seismic hazards, to insure safety and conformity with existing natural constraints.
- (7) Seek public acquisition of environmentally critical areas that have outstanding valuable natural functions and aesthetic assets.
- (8) Administer and enforce adopted land use regulations that protect environmentally critical areas from the impacts of adjacent land uses.
- (9) Require the issuance of a permit and review by the City prior to any construction activity that would occur in, be adjacent to, or would likely affect a critical area. A permit would be required because the functions and values of unique critical areas can be severely damaged by improper refuse dumping, clearing, grading, filling, and construction.
- (10) Using "best available science" (BAS), review and update development regulations pertaining to development in and protection of critical areas (the Critical Areas Ordinance), particularly those which directly or indirectly effect the health of the regions' anadromous fisheries, in the City of Des Moines, between five and ten years of the adopted ordinance date.
- (11) In designating and protecting critical areas the City shall include BAS, consistent with criteria set out in WAC 365-195-900 through 365-195-925.
- (12) BAS is information that (1) state or federal natural resource agencies have determined represents the best available science, (2) was derived from consultation with qualified scientific expert(s), as defined in WAC 365-195-905, or (3) was produced through a valid scientific process. A valid scientific process should have the following characteristics, as defined in WAC 365-195-905: peer review, methods, logical conclusions and reasonable inferences, quantitative analysis, context, and references.
- (13) Where valid or complete scientific information is not available, the City shall take a precautionary or no risk approach, in which development and land use activities are strictly limited until the uncertainty is sufficiently resolved (as stated in WAC 365-195-920). As an interim approach the

City should take an effective adaptive management approach, where the results of land use decisions are scientifically evaluated as to their impacts on critical areas.

- (14) Strive to balance the City's goals of protecting environmentally critical areas with the other social, cultural, and economic goals of the City of Des Moines Comprehensive Plan.
- (15) Document, on the record, the use of BAS and instances when non-scientific information was used in-lieu-of BAS during the process of developing policies and regulations to protect critical areas and anadromous fisheries. Documentation should include the relevant sources of BAS. Documentation should also include information that departs from BAS and was used as a basis for critical areas policies and regulations.
- (16) The City should identify and document any non-scientific information (including legal, social, cultural, economic, and political), used as a basis for critical areas ordinance policies and regulations, that departs from recommendations derived from BAS. In these cases the City should provide a rationale for use of such information. The City should also identify potential risks to the functions and values of the critical areas at issue and any additional measures chosen to limit such risk.

5-04-09 Require the undergrounding of utility lines as specified by the - DMMC to minimize public safety hazards, visual clutter, and the obstruction of views. Encourage the undergrounding of utilities throughout Des Moines. Encourage the use of shared corridors for several utilities

6-03-06 The intent of park classifications and standards is to aid in identification of facility requirements and characteristics that respond to the various recreational needs of the City of Des Moines. Several factors are considered in connection with the classification and planning decisions. These are:

- (a) Determination of specific need in neighborhood or community setting.
- (b) Relationship of need, design criteria, service capability and suitability of a specific site to support the defined recreation service need.
- (c) The probability of school/park relations in terms of site development and facility use for public recreation purposes.
- (d) The probability of creating public/private partnerships on special use parks or in combination with a traditional public park.
- (e) Operational, maintenance and program service requirements for the population to be served by a particular park unit.

Classification of parks establishes several essential elements for park land requirements based on population ratios and the types of recreational uses and services to be provided. The physical improvements of a park should respond to the preferences or needs of citizens. The following park classifications for the City of Des Moines are modified from the National Recreation and Park Association to fit the needs of Des Moines. Refer to the City of Des Moines Parks, Recreation and Senior Services Master Plan for locations of parks.

6-04-01 Conserve Open Space Land For Natural, Cultural & Recreation Values:

- (1) Coordinate and maintain procedures for conservation of open space through mechanisms such as zoning, donation, purchase of easements, conservation easements with coordinated planning, taxing and management actions.
- (2) Ensure that proposed land use and transportation facilities that would subject locally significant parks, golf courses, ball fields, outdoor spectator sports areas, amusements areas, riding stables, nature trails and wildlife refuges to exterior noise exposure levels which exceed limits identified in (chapter 18.38 DMMC) are opposed or include mitigation measures commensurate with the magnitude of adverse impact anticipated.
- (3) Where appropriate for recreation or open space purposes, transfer derelict land, easements, tax delinquent land, surplus roadway/highway rights-of-way, and other land not presently in productive use where such land can be used for land exchange, purchase or long-term leases.
- (4) Make maximum use of lands associated with surface water management and other public utilities to meet recreation needs.
- (5) Enforce regulations for new residential, business, commercial or industrial development and redevelopment which require either the dedication of park lands, provision of recreation facilities or payment of fees in-lieu of land to a park and recreation trust fund.
- (6) Work with conservation groups and the private sector to encourage donations or bargain sales of land through equitable incentives and to identify, acquire and conserve or manage natural open space areas and other recreational land.

6-04-02 Encourage Joint Use of Existing Physical Resources:

- (1) Where appropriate, establish joint use recreational facilities while ensuring recreation services to the entire community. Utilize school sites and public buildings for recreation and service programs through establishing joint purchase and/or use agreements.
- (2) Develop specific agreements and reciprocal no fee policies which encourage park use by school groups and school use by recreation user groups of all ages.

- (3) Encourage joint-use for recreation wherever lands and facilities are suitable and committed to other private and public purposes, including City, county/state properties, utilities rights-of-way, and the property of institutions and private corporations

7-04-15 Continue to allow townhome developments. Consider textual code amendments that would allow the design review process of townhome developments to occur during the final plat process, rather than during preliminary review. Continue to require a conceptual site plan at time of preliminary review



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Landmarque

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TRAFFIC IMPACT ANALYSIS

for a

Single Family Residential Development with a Small Commercial Site

in the

City of Des Moines

King County



June 30th, 2006

Landmarque

TRAFFIC IMPACT ANALYSIS

Table of Contents

Purpose	1.
Location and Access	3.
Scope	4.
Adjacent Land Uses	4.
Phasing	5.
Street System	5.
Transit	5.
Traffic Characteristics	5.
Horizon Year Traffic	6.
Trip Generation	6.
Trip Distribution & Assignment	9.
Year 2007 Horizon Year Traffic	10.
Capacity Analysis	10.
Comments on Level of Service and Traffic Mitigation	15.
Illumination & Transit Stop	15.
Pacific Highway South/South 263 rd Street Access	15.
Conclusions	16.

List of Figures

1. Vicinity Map	2.
2. Current (2005) P.M. Peak Hour Traffic Volumes	7.
3. 2007 P.M. Peak Hour Traffic Volumes <i>without</i> Project	8.
4. P.M. Peak Hour Traffic Assignment (Residential Sector)	11.
5. P.M. Peak Hour Traffic Assignment (Commercial Sector)	12.
6. 2007 P.M. Peak Hour Volumes <i>with</i> Project	13.

List of Tables

I Landmarque Trip Generation (Residential)	6.
II Landmarque Trip Generation (Commercial)	9.
III Directional Distribution of P.M. Peak Hour Traffic	9.
IV Levels of Service	14.

Appendix

ITE LUC 210 S-F Residential Summary & Data
ITE LUC 947, Self-Service Car Wash Summary & Data
WSDOT Figure 910-11 *Right-Turn Lane Guidelines*
WSDOT Figure 910-12b *Right-Turn Lane* (Design Standard)
Peak Hour Data Field Sheets
LOS Computations



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Landmarque

a

TRAFFIC IMPACT ANALYSIS

for a

Single Family Residential Development with a Small Commercial Site

in the

City of Des Moines

King County

Purpose

Briefly, the purpose of this study is to determine the horizon year traffic impacts that may be anticipated with the completion of a single family residential development (that also includes a small commercial site) in the City of Des Moines along Pacific Highway South and 20th Avenue S. generally between S. 263rd Place and S 261st Place.

At the present time the property is suitable for commercial uses. With the proposed development the major portion of the site near 20th Avenue S. will be used for the construction of 73 single-family residences and, along Pacific Highway S. at the intersection with the proposed S. 263rd Street, where a small commercial site currently exists, possibly a self-service car wash or similar commercial facility.

The location of the site is shown on the *Vicinity Map*, Figure 1, page 2.

In consideration of the proposed *Landmarque* development the City of Kent's improvement project along Pacific Highway S. is assumed by the horizon year of 2007 to be fully implemented so that new transit lanes will exist along this arterial and a median barrier will preclude left-turn movements along the entire route. However, every quarter of a mile, openings in the median will allow U Turn movements according to the City of Kent's project engineer.



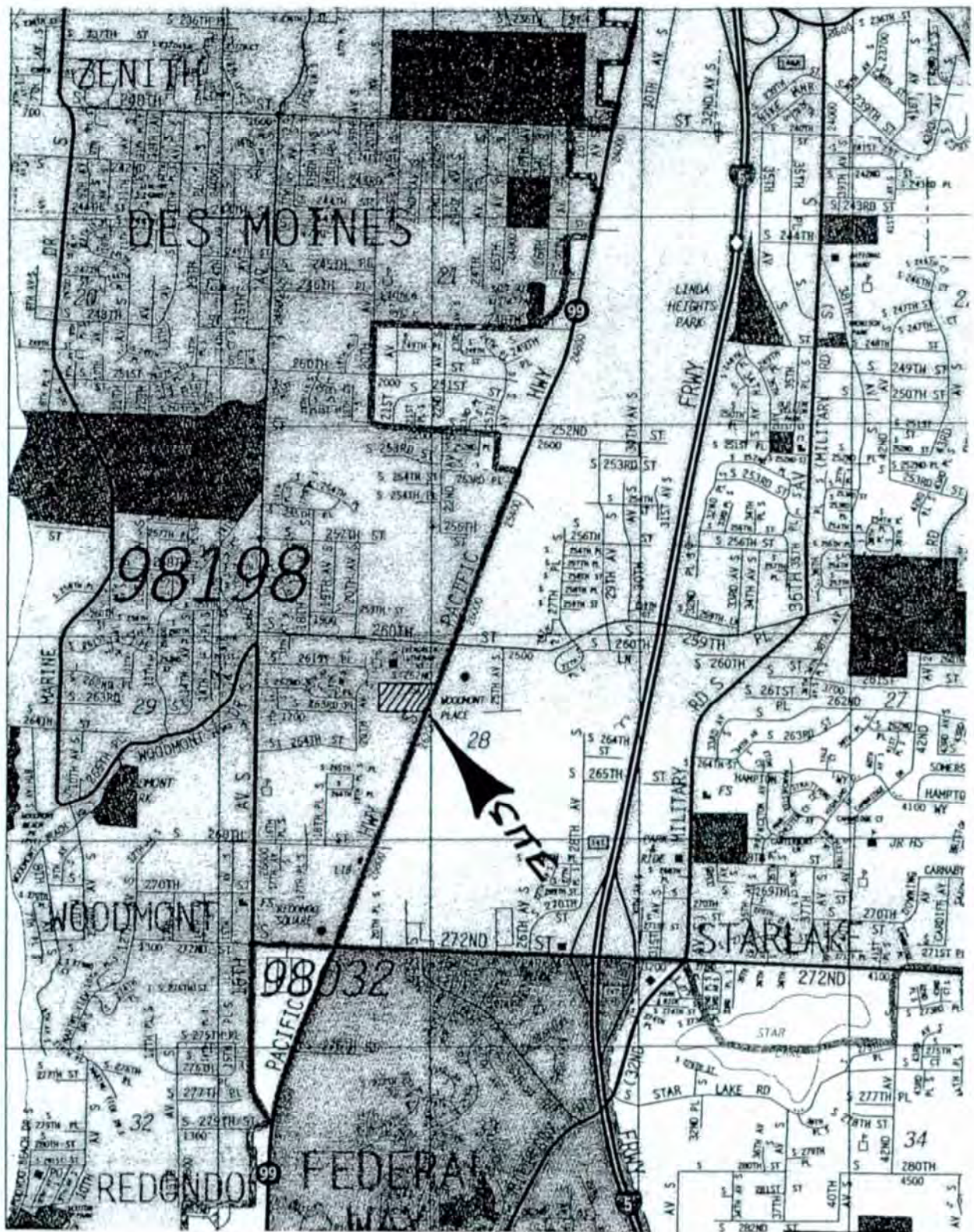


FIGURE 1

Vicinity Map



For analysis purposes the design hour traffic volumes (DHV) used for analyzing traffic flow characteristics is taken as the p.m. peak hour since this is the highest peak hour of the average weekday in that it contains work, shopping and social-recreation travel demands. Accordingly, for residential and commercial developments of this kind it represents the worst case when traffic congestion is at its most severe levels. This traffic impact analysis (TIA) bases its conclusions and recommendations on the p.m. peak hour of the average weekday.

The inclusion of a background traffic growth rate for assessing horizon year volumes is in accordance with the recommended practice of the Institute of Transportation Engineers (ITE), *Traffic Access and Impact Studies for Site Development*, **Transportation Engineering**, August 1988. In this case the annual average rate of growth along the arterial system is taken at 3.5 percent per year while the rate of growth on the local collector roads is taken at 1.5 percent per year.

This traffic study uses a p.m. peak hour trip distribution model based on the previously approved September 24, 2001 *Pacific Place TIA* which is located north of the intersection of S. 268th Street and west of Pacific Highway S.

Location and Access

First, the location of the proposed 73 single-family (s-f) residences was briefly noted earlier on page 1. These are all located on a single parcel of land situated to the west of the commercial sector the eastern extension of S. 264th Place and S. 261st Place.

Access to these s-f residences will be from a new collector street intersecting Pacific Highway S. in a "Tee" intersection. Since a median will be constructed along Pacific Highway S. such access will be limited to right turn in and right turn out (RI/RO) only.

The collector street from Pacific Highway S., as it moves west, will turn to the north with a 90° angle to connect with the proposed 21st Avenue S. and, at its north end, will again turn west with a second 90° angle to form a new extension of S. 261st Place. In essence, the single-family sector will have only one linkage to Pacific Highway S. limited to RI/RO and one linkage to the neighboring residential community via S. 261st Place.

Second, the commercial sector (assumed to be a car-wash) is limited to a portion of the property along Pacific Highway S. as noted earlier. Again, due to the median along Pacific Highway S. it is assumed that its driveway(s) will likewise be limited to RI/RO.

The access points for the site are schematically shown the following traffic diagrams (except for brevity the commercial and residential access to Pacific Highway S. is shown as only a single access with RI/RO limits).



Scope

For the purpose of this traffic study the scope of the work considers only the proposed 73 single-family residences and a "self service car wash" on the remaining small commercial site located at the intersection of Pacific Highway S. and South 263rd Street.

Naturally, as actual development plans are finalized the single-family sector may be altered in scale and the commercial sector could be revised to some other commercial use suitable to the scale of the site and in consideration of the right turn in and right turn out limitations at the main intersection. Such changes will most likely not affect the final results of this TIA with respect to the predicted levels of service.

Considering the proposed *Landmarque* development the key intersections expected to be impacted by 10 or more site generated p.m. peak hour trips include the following.

- Pacific Highway S. @ S 272nd Street
- Pacific Highway S. @ S. 268th Street
- Pacific Highway S. @ S. 260th Street
- 16th Avenue S. @ S. 272nd Street
- 16th Avenue S. @ S. 262nd Place
- 16th Avenue S. @ S 260th Street/Woodmont Drive

These intersections are described schematically in the following traffic diagrams and are analyzed later in this study.

In general, the scope of the study is to address potential design needs and/or capacity restrictions and potential traffic safety impacts on those arterial facilities receiving ten or more p.m. peak hour trips. Further, since new site related traffic will be brought into the existing, mature residential neighborhood lying to the west of the site, the potential impacts on the key residential collector streets may also be assessed.

Adjacent Land Uses

The adjacent, presently developed land uses to the west of the site are all single family residential. There are no commercial properties in that immediate neighborhood along 16th Avenue S. Conversely, along Pacific Highway S., developed properties tend to be commercial in nature. These include the *Travel Inn Motel* on the north side of the site and the *Hanwoori Mission Church* on the south side. Institutional land uses also include the King County (Woodmont) Library on the southwest quadrant of the intersection at S. 268th Street. Accordingly, for the immediate neighborhood, the plat will conform to the existing locality as it has developed in the past.



Phasing

Recognizing that this TIA considers the full implementation of the *Landmarque* development proposal, this analysis presumes the total development to be fully built-out and occupied in a single phase in no more than about two years, say by the end of 2007. Thus, 2007 defines the horizon year for this TIA in terms of background traffic growth.

Street System

The immediate fronting arterial street serving the plat is Pacific Highway S. Currently this is a 4-lane arterial with additional protected left turn channelization at the signalized intersections. This facility has a posted speed limit of 45 mph. Shoulders about 10 feet in width are provided on both east and west sides and serve for transit stops. The signalized intersections along this route include pedestrian actuated signalized crossings.

16th Avenue S. is a 2-lane facility with narrow shoulders along most of its length. It has a posted speed limit of 35 mph. At the Woodmont Elementary School crossing guards are used for ensuring safe (school child) pedestrian crossings.

Both S. 260th and S. 272nd Streets have posted speed limits of 35 mph and include additional intersection widening at their signalized intersections with both 16th Avenue S. and Pacific Highway S.

The various intersection lane geometrics, lane assignments and street approach grades are included in the appended level of service analyses.

Transit

Metro transit operates routes 191, 173, 174, and 175 along Pacific Highway S. Also, Dial a Ride (DART) transit is available during the day serving the immediate neighborhood.

Traffic Characteristics

Current (mid-April, 2005) p. m. peak hour traffic volume data were obtained in the field under typically spring weather conditions with all observations taken on dry and sunny days. No adverse weather or unusual traffic conditions existed that would skew or otherwise bias the data. Likewise, being in the spring season with all schools in session and normal employment patterns extant, the data is considered entirely stable and useful for traffic analysis purposes. Current p.m. peak hour traffic volumes are shown next,



schematically on Figure 2. As a traffic diagram no scale is assumed: the respective arrowheads note the direction of travel.

In general, currently, on the local arterial street network bus and pedestrian traffic volumes were relatively light during the p.m. peak hour.

Horizon Year Traffic

Figure 3 shows the 2007 horizon year traffic forecast **without** the proposed *Landmarque* residential and commercial development in full operation. Fundamentally, the data represents the **Not Built** case.

The baseline data of Figure 3 is based on a background growth rate of 3.5 percent on the arterial network and 1.5 percent growth on the residential network. Taken together they yield an adequate horizon year estimate for traffic planning purposes.

Trip Generation

Trip generation for the proposed *Landmarque* development is based on the 7th edition of the **Institute of Transportation Engineers (ITE)** *Trip Generation Manual*. For the residential sector ITE *Land Use Code 210*, the applicable reference for single-family homes, is used while *Land Use Code 947, Self-Service Car Wash*, applies to the small portion of the overall site along Pacific Highway S. As a significant residential development the published regression equations are used for that component. The self-service car wash sector is based on the published average trip rates.

TABLE I

Landmarque Trip Generation

Residential Sector with 73 Single-Family Homes

A.W.D.T.	778 Trips/Day
A.M. Inbound	16 vehicles/hour
A.M. Outbound	45 vehicles/hour
P.M. Inbound	51 vehicles/hour
P.M. Outbound	30 vehicles/hour



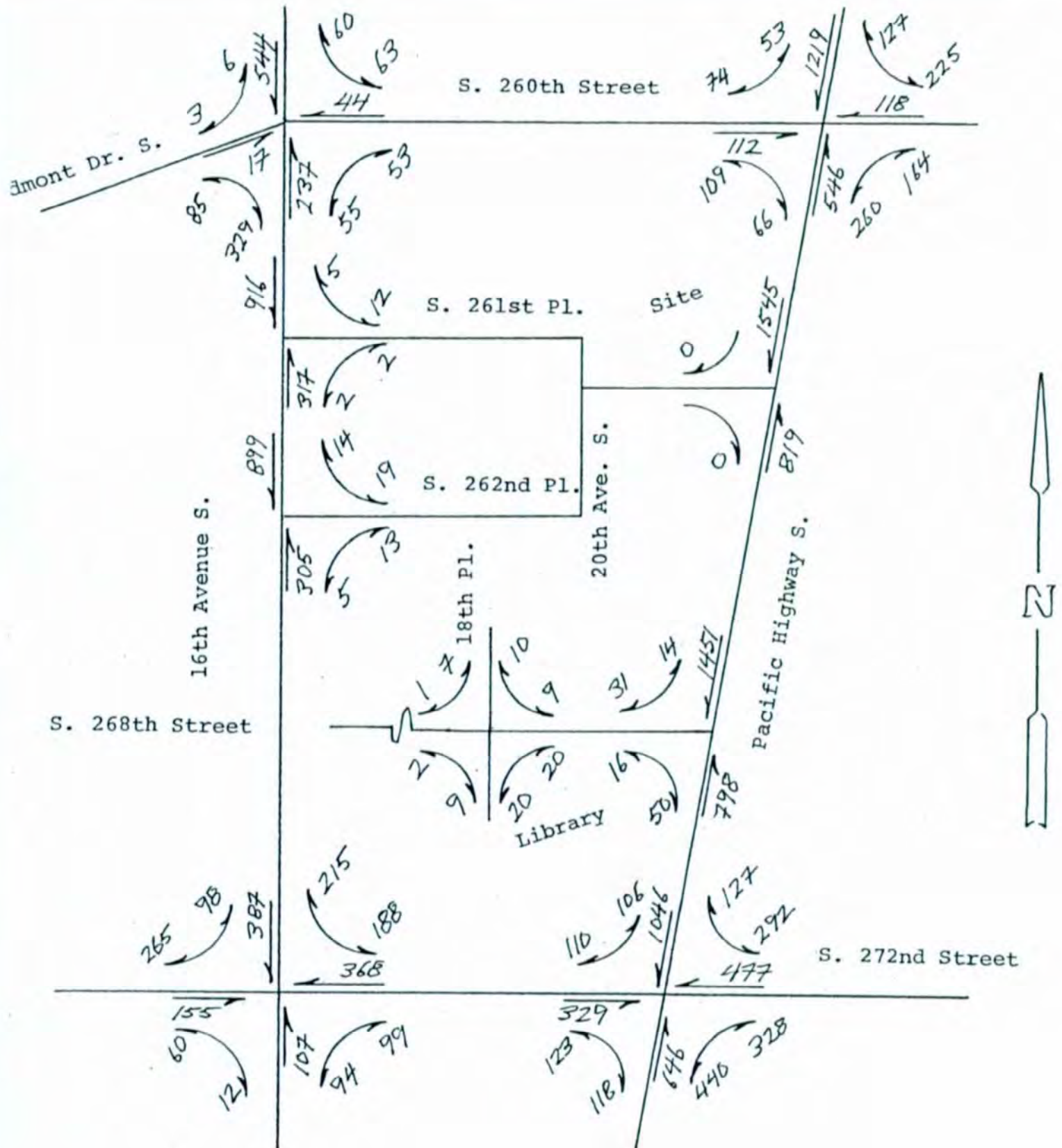


FIGURE 2

Current (2005) P.M. Peak Hour
Traffic Volumes



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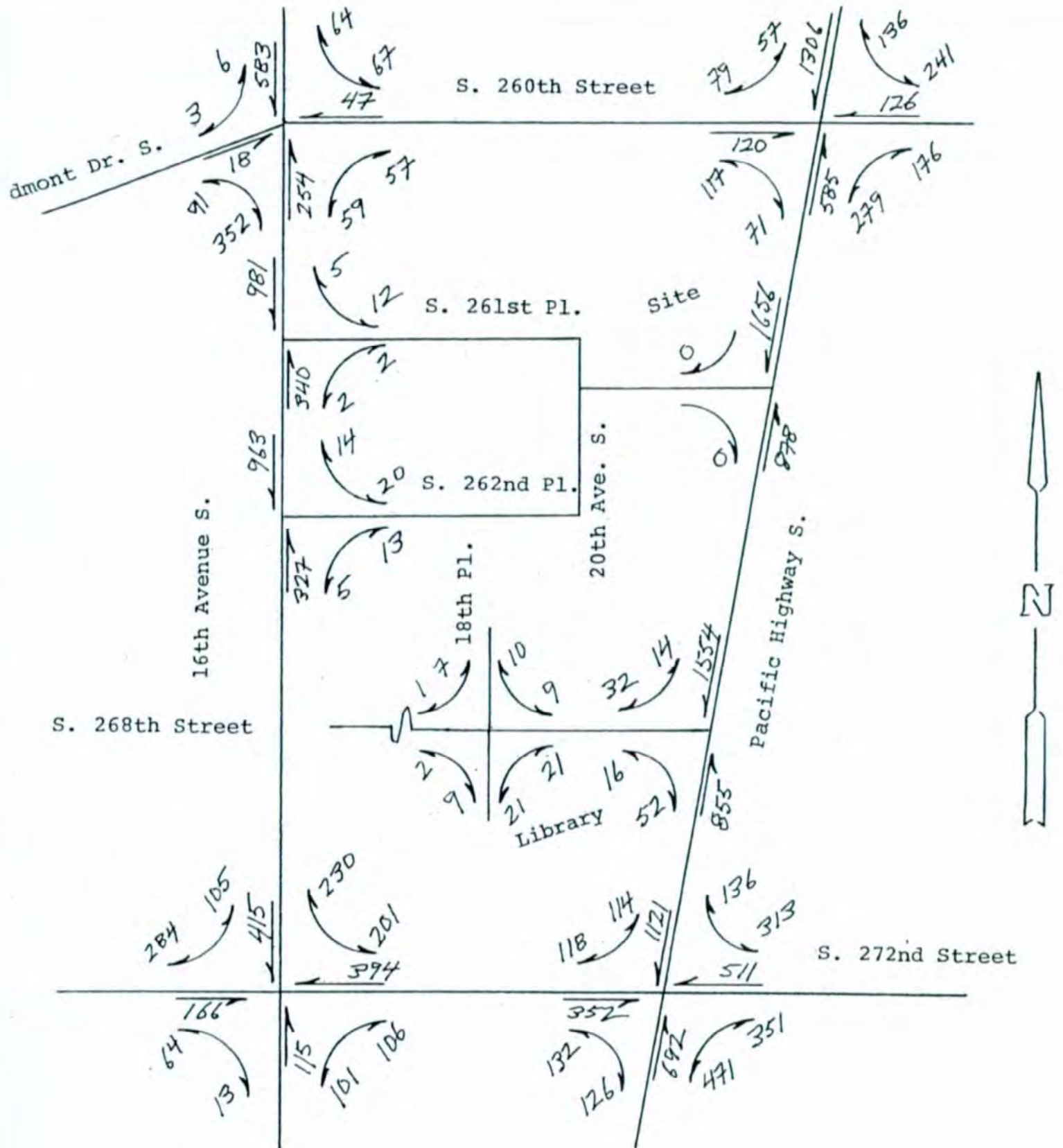


FIGURE 3

**2007 P.M. Peak Hour Traffic Volumes
without Project**



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TABLE II

Landmarque Trip Generation

Commercial Sector as a Six Bay, Self-Serve Car Wash

A.W.D.T.	648 Trips/Day
A.M. Peak	Not Published
P.M. Inbound	17 vehicles/hour
P.M. Outbound	16 vehicles/hour

In addition, considering the commercial sector of the total site, the car wash, it may be noted that about 43 percent of its traffic may be considered "pass-by" traffic if it trends like LUC 843, an auto parts store. That is to say, nearly half of its traffic comes from the current and future passing traffic stream. Accordingly, its net new traffic is about seven trips in and out per hour in the peak. However, for a worst-case analysis, in this study no data delimitation is assumed.

Trip Distribution & Assignment

The new traffic generated by this development will be distributed onto the adjacent roadway system and then onto the regional transportation network via access to the fronting Pacific Highway S. and to a lesser extent via the local collector street network on the west side of the site and inked to 16th Avenue S. via S. 261st Place and S. 262nd Place.

The traffic distribution and assignment of site-generated traffic is based on the *Analogy Method* described in *Transportation and Land Development*, Vergil G. Stover, 1988, published by the Institute of Transportation Engineers (ITE). The assignment model is based on the previously approved distribution model for Pacific Place located off S. 268th Street. This yields the following trip assignments.

TABLE III

Directional Distribution of P.M. Peak Hour Traffic

To and from the North via I-5 and S 272 nd Street	59 %
To and from the South via I-5 and S 272 nd Street	20 %
To and from the East via S 272 nd Street at I-5	12 %
To and from the South via Pacific Hwy. S. at S 272 nd Street	3 %
To and from the North via Pacific Hwy. S. at S 260 th Street	5 %
To and from the North via 16 th Ave. S. at S 260 th Street	1 %



Schematic diagrams showing the future design hour (p.m. peak) trip assignments for the residential and commercial sectors of the proposed *Landmarque* project are shown respectively Figure 4, page 11 and Figure 5, page 12.

In developing these figures there are no assumed arterial facility capacity restraints although, given the completion of the City of Kent's HOV project on Pacific Highway S. the access system on Pacific Highway S. is naturally limited to only the previously described right turn out and right turn in (RO/RI) movements.

Year 2007 Horizon Year Traffic

Figure 6 shows the estimated *2007 Volumes with Project*. The data is made up of the data of Figures 4 and 5 and the baseline 2007 data developed from only the background growth previously described.

As noted earlier, the summed peak hour data assumes no diversion due to inadequate traffic conditions (such as congestion) nor presumes any geometrically or capacity inadequate linkages by the horizon year of 2007. In actual fact there may be some congestion on side streets approaching 16th Avenue S. and at the intersection of 16th Avenue S. and S. 260th Street/Woodmont Drive S. which has been scheduled for improvement and new signalization.

Capacity Analysis

Capacity analysis is in accordance with the **1997 Highway Capacity Manual (HCM)** and attendant intersection capacity up-dates for the new **HCM 2000** publication by the Transportation Research Board. The analysis was accomplished using the software entitled **HCS 3**, produced by the McTrans Center at the University of Florida, and the *Signal 97 TEAPAC* software produced by **Strong Concepts** of Northbrook, Illinois, both used under license to Christopher Brown, P.E. The results of the analysis are noted in Table III.

When reviewing the following LOS tabulated summaries, note that the computer input and results are included in the *Appendix*. The appendix computations show the degree of saturation, average delays, maximum queue lengths and approach LOS values as well as the overall LOS values at the signalized intersection. At STOP controlled intersections only the minor (STOP) approach overall LOS and delay and is listed.



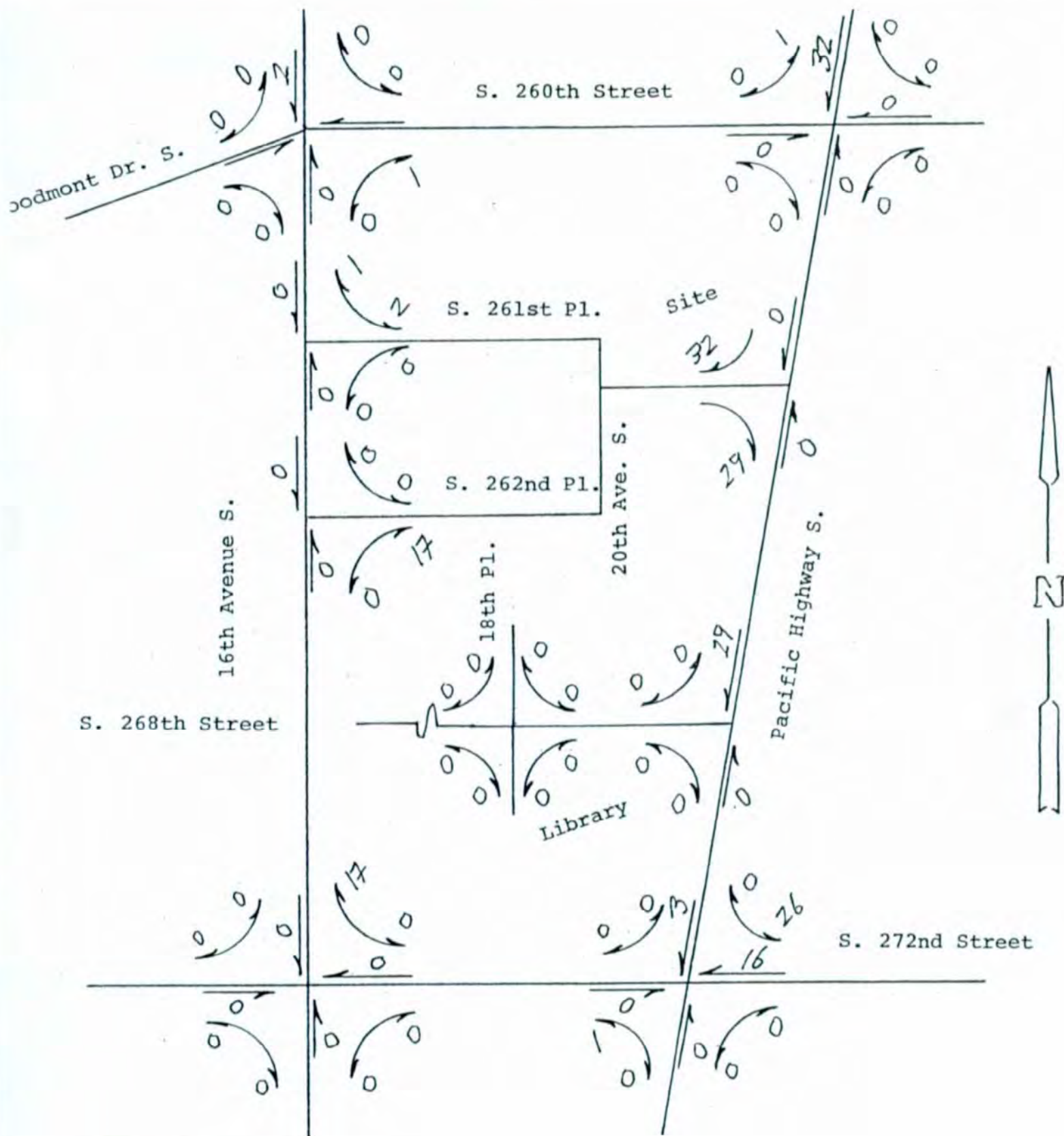


FIGURE 4

**P.M. Peak Hour Traffic Assignment
Residential Sector of the Project**



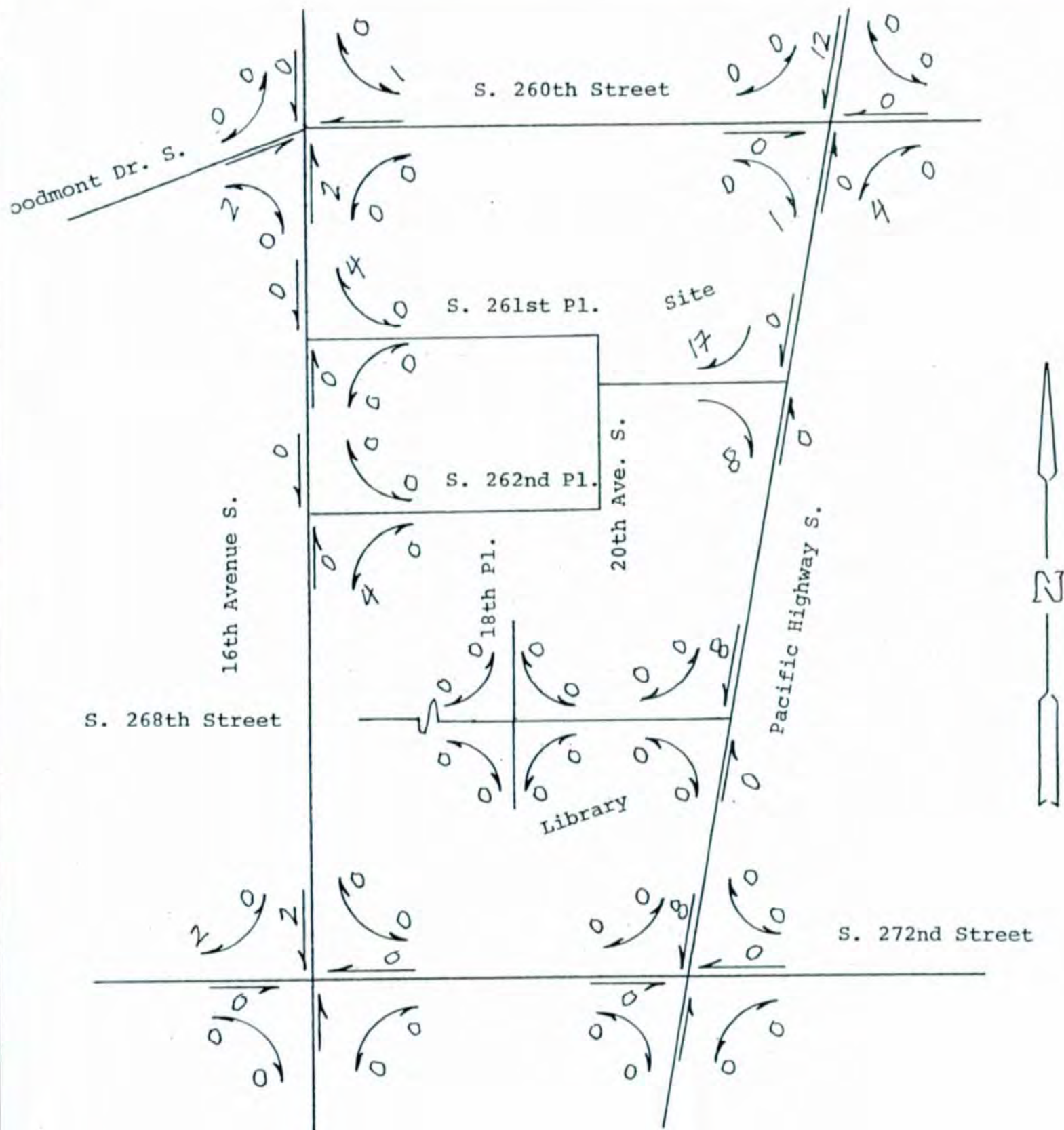


FIGURE 5

**P.M. Peak Hour Traffic Assignment
Commercial Sector of the Project**



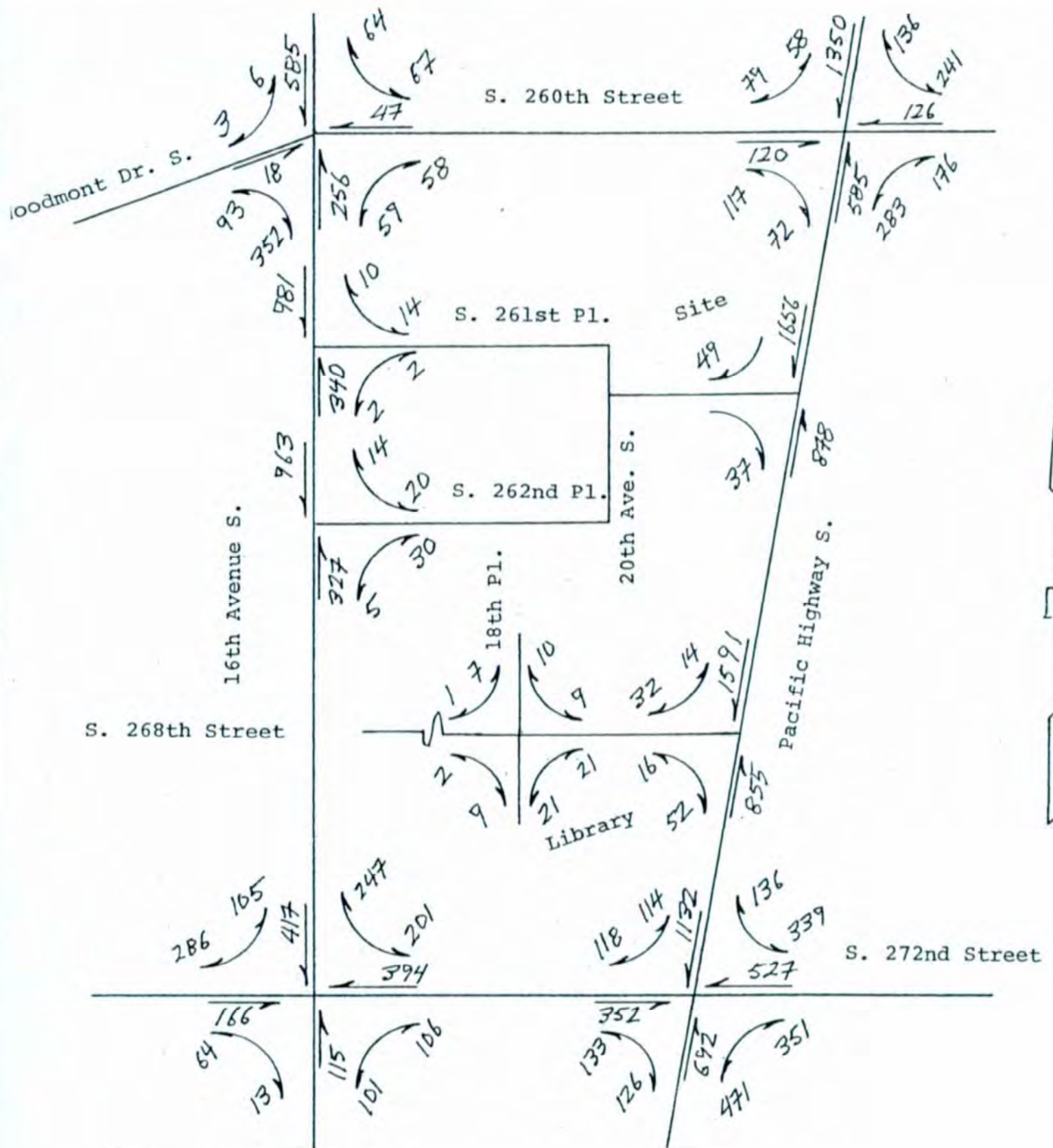


FIGURE 6

**2007 P.M. Peak Hour Traffic Volumes
With the Project**



TABLE IV

Levels of Service

Intersection	2005	2007 <i>Without</i> Project	2007 <i>With</i> Project
16 th Ave. S./Woodmont Dr./S. 260 th St.	F	E ^{Note A}	E ^{Note A}
SIGNAL Controlled intersection	<80 sec.	73.3 sec.	74.1 sec.
S. 260 th Street/Pacific Highway S.	D	D	D
SIGNAL Controlled intersection	40.1 sec.	48.0 sec.	52.6 sec.
S. 272 nd Street/Pacific Highway S.	E	E	E
SIGNAL Controlled intersection	61.2 sec.	73.7 sec.	77.6 sec.
16 th Ave. S./ S. 272 nd Street	B	B	B
SIGNAL Controlled intersection	16.1 sec.	17.7 sec.	17.8 sec.
16 th Ave. S./S. 261 st Place	C	C	B
STOP Controlled intersection	15.2 sec.	15.4 sec.	15.4 sec.
16 th Ave. S./S. 262 nd Place	B	C	C
STOP Controlled intersection	14.8 sec.	15.8 sec.	16.0 sec.
New S. 263 rd Place/Pacific Highway S.	NA	NA	C ^{Note B}
STOP Controlled intersection	NA	NA	20.4 sec.

Note A

Mitigated LOS at the intersection of 16th Avenue S./Woodmont Drive/S. 260th Street is based on the city's proposed widening project of 16th Avenue S. that includes a center 2-way, left turn lane (2WLTL), bike lanes and new sidewalks on both east and west sides. At the signalized intersection the 2WLTL becomes a protected left turn lane thus increasing the intersection's capacity. A new traffic signal is included with the project.

Note B

The LOS at this intersection assumes the current street geometry without the recommended right turn lane per DOT standard discussed later or the use of the proposed transit only lane of the City of Kent's improvement project.

The current and future year signalized intersection(s) LOS analyses are based on optimizing signal routines but all intersections maintain the current signal phasing.

From the foregoing, it is apparent that in terms of levels of service the proposed rezone can be accommodated on the city's arterial and street network with no adverse impacts.



Comments on Levels of Service and Traffic Mitigation

In Table IV the levels of service for all of the analyzed existing intersections use the existing street geometry with the exception of the intersection at 16th Avenue S./Woodmont Drive/S. 260th Street where the future (2007) LOS both with and without the project is based on the City of Des Moines' proposed of 16th Avenue S.

While there are several instances where the average delay is marginally increased as a consequence of the project, the levels of service remain unchanged from the *without* project case. Accordingly, it may be concluded that while the project naturally adds additional traffic to the p.m. peak hour of the street network, there are no adverse traffic operations associated to the project. The direct effects of the project are essential minor and consequently inconsequential.

In summary, no local network mitigation is appropriate given the adequate LOS on the arterial system.

Illumination & Transit Stop

Since a new intersection is proposed at S. 263rd Place/Pacific Highway S. it is appropriate to consider nighttime illumination. This will be especially important during the dark winter months.

Similarly, Metro should be contacted with the goal of including a transit stop this intersection. In this regard a "far side" bus stop would be appropriate for Routes 173, 174, 175, and 191.

Pacific Highway South/South 263rd Street Access

The intersection of Pacific Highway South at the proposed South 263rd Street intersection was reviewed against the WSDOT Figure 910-11 Right-Turn Lane Guidelines and Figure 910-12b Right-Turn Lane (Design Standard) with the forecast 2007 design hour volumes. On the basis of the Design Manual standards, a "right turn lane" should be constructed with the design parameters noted on Figure 910-12b. Note that the right turn lane provides a superior access over an ordinary taper or right turn pocket.

Recognizing that the "right turn lane" provides the most efficient access and, as such ensures no capacity inhibition, it is recommended for this intersection in the event the development is fully occupied before the City of Kent's HOV lane project is completed. If, on the other hand, the HOV project is completed, then the above described "right turn lane" is redundant and not required at all since the HOV lane is used for the purpose.



Conclusions

The following conclusions may be considered with respect to the proposed *Landmarque* development.

- The property will accommodate 73 single-family homes and a small commercial development assumed to be a 6-bay, self-service, car wash.
- The single-family residential sector will conform to the residential neighborhood to the west and is thus not a conflicting land use.
- The single-family residential sector will also serve as a buffer for the proposed commercial sector – the 6-bay, self-service, car wash.
- The commercial sector will be located along Pacific Highway S.
- Access to the property includes a new road that may be named S. 263rd Place.
- By the time the project is fully implemented Pacific Highway S. will have a raised median that limits left turn access at S. 263rd Street.
- In addition, the Pacific Highway S. project incorporates new HOV/Transit lanes along the curbs and every quarter mile median openings for U Turning traffic.
- The City of Des Moines will be enhancing 16th Avenue S. from S. 260th Street to S. 272nd Street by constructing a new center 2-way, left turn lane, new five-foot wide bike lanes and new five-foot wide sidewalks on each side.
- The new 16th Avenue S. project is a significant mitigation measure since it will raise the current LOS 'F' at Woodmont Drive/S. 260th Street to LOS 'E'.
- The remaining intersections examined in this TIA, including South 260th Street at Pacific Highway S., South 272nd Street at Pacific Highway S., 16th Avenue S. at South 272nd Street and the two STOP controlled intersections on 16th Avenue S. at both South 261st and 262nd Place S. will operate with no change in the LOS.
- Based on the 7th edition of *Traffic Generation* and the use of the published regression equations for single-family residences *Landmarque* will generate some 778 trips per day with 61 of these trips taking place during the morning peak hour and 81 in the p.m. peak hour.
- Similarly, the commercial sector, as a car wash, is expected to generate 648 trips per day with 33 of these trips taking place during the p.m. peak hour.
- The commercial site related vehicular trips could include pass-by trips in the range of 43 percent according to the *ITE Trip Generation Handbook*, 2nd edition.
- For analysis purposes the time when the project is complete and fully occupied is taken at the year 2007. This is the horizon year for the TIA.
- The background traffic growth, exclusive of the above described development's traffic, is taken at 3.5 percent per year for arterial streets and 1.5 percent per year for collector streets.
- The traffic assignment of site-generated traffic is based on the *Analogy Method*.
- In the horizon year of 2007 *without* the project the worst-case LOS will be 'E' at 16th Avenue S./Woodmont Drive/South 260th Street.



- By 2007 *with* the project the worst-case LOS will continue to be 'E' for the signalized intersection of 16th Avenue S./Woodmont Dr./S. 260th Street.
- Since the Pacific Highway S. project limits access on that arterial to right in and right out (RI/RO) as a consequence there will be some diversion of traffic through the residential neighborhood located to the west of the site.
- Traffic diverted through this neighboring residential area will be in the order of about 28 trips per hour in the p.m. peak hour.
- Traffic diverting through the adjacent neighborhood will not alter current access levels of service for present neighbors since the LOS is unchanged *with* or *without* the project. It will remain at an acceptable LOS 'C'.
- Overhead nighttime illumination is recommended at the entrance road serving *Landmarque* on Pacific Highway S.
- Additionally, a "right turn lane" (as distinct to either a "taper" or a "right turn pocket") is recommended for implementation in concert with the design and construction of the new South 263rd Street on Pacific Highway S. if and only if the City of Kent's HOV project is *not* completed by the time of full site occupancy.
- The "right turn lane" should be designed in accordance with WSDOT *Design Manual, Figure 910-12b* and is recommended as a mitigation measure to ensure the maintenance of adequate capacity between the intersections of South 260th and South 272nd Streets.
- If the City of Kent's HOV project is completed by the time of full site occupancy (taken at 2007) then the HOV lane will then serve the same function as the RTO lane and thus the RTO lane becomes redundant and should not be constructed.
- No other traffic mitigation is required on the basis of this traffic impact analysis given the limited direct project related impacts.



Landmarque

Appendix

Table of Contents

1. ITE LUC 210, Single-Family Detached Housing- Definition
2. ITE LUC 210, Single-Family Detached Housing- weekday traffic
3. ITE LUC 210, Single-Family Detached Housing- a.m. peak traffic
4. ITE LUC 210, Single-Family Detached Housing- p.m. peak traffic
5. ITE LUC 947, Self-Service Car Wash- Definition
6. ITE LUC 947, Self-Service Car Wash- weekday traffic
7. ITE LUC 947, Self-Service Car Wash- p.m. peak traffic

Traffic Count Summary - 16th Avenue S./Woodmont Dr./S. 260th Street
Traffic Count Summary - 16th Avenue S./S. 272nd Street
Traffic Count Summary - Pacific Highway S./S. 260th Street
Traffic Count Summary - Pacific Highway S./S. 268th Street
Traffic Count Summary - Pacific Highway S./S. 272nd Street

WSDOT Figure 910-11 Right-Turn Lane Guidelines
WSDOT Figure 910-12b Right-Turn Lane (Design Standard)

Levels of Service

16 th Ave. S./South 260 th St.	Current Volumes	MR-C1P	1.
16 th Ave. S./South 260 th St.	Horizon Year w/o Project	MR-H1P	3.
16 th Ave. S./South 260 th St.	Horizon Year with Project	MR-P1P	5.
S. 260 th Street/Pacific Highway S.	Current Volumes	MR-C2P	7.
S. 260 th Street/Pacific Highway S.	Horizon Year w/o Project	MR-H2P	8.
S. 260 th Street/Pacific Highway S.	Horizon Year with Project	MR-P2P	11.
S. 272 nd Street/Pacific Highway S.	Current Volumes	MR-C3P	13.
S. 272 nd Street/Pacific Highway S.	Horizon Year w/o Project	MR-H3P	15.
S. 272 nd Street/Pacific Highway S.	Horizon Year with Project	MR-P3P	17.
16 th Ave. S./ South 272 nd Street	Current Volumes	MR-C4P	19.
16 th Ave. S./ South 272 nd Street	Horizon Year w/o Project	MR-H4P	21.
16 th Ave. S./ South 272 nd Street	Horizon Year with Project	MR-P4P	23.
16 th Ave. S./S. 261 st Place	Current Volumes	MR-C5P	25.
16 th Ave. S./S. 261 st Place	Horizon Year w/o Project	MR-H5P	26.
16 th Ave. S./S. 261 st Place	Horizon Year with Project	MR-P5P	27.
16 th Ave. S./S. 262 nd Place	Current Volumes	MR-C6P	28.
16 th Ave. S./S. 262 nd Place	Horizon Year w/o Project	MR-H6P	29.
16 th Ave. S./S. 262 nd Place	Horizon Year with Project	MR-P6P	30.
Pacific Highway S./S. 263 rd Pl.	Horizon Year with Project	MR-P7P	31.



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Land Use: 210

Single-Family Detached Housing

Description

Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.

Additional Data

The number of vehicles and residents have a high correlation with average weekday vehicle trip ends. The use of these variables is limited, however, because the numbers of vehicles and residents was often difficult to obtain or predict. The number of dwelling units is generally used as the independent variable of choice because it is usually readily available, easy to project and has a high correlation with average weekday vehicle trip ends.

This land use included data from a wide variety of units with different sizes, price ranges, locations and ages. Consequently, there was a wide variation in trips generated within this category. As expected, dwelling units that were larger in size, more expensive, or farther away from the central business district (CBD) had a higher rate of trip generation per unit than those smaller in size, less expensive, or closer to the CBD. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

Single-family detached units had the highest trip generation rate per dwelling unit of all residential uses, because they were the largest units in size and had more residents and more vehicles per unit than other residential land uses; they were generally located farther away from shopping centers, employment areas and other trip attractors than other residential land uses; and they generally had fewer alternate modes of transportation available, because they were typically not as concentrated as other residential land uses.

The peak hour of the generator typically coincided with the peak hour of the adjacent street traffic.

The sites were surveyed from the late 1960s to the 2000s throughout the United States and Canada.

Source Numbers

1, 4, 5, 6, 7, 8, 11, 12, 13, 14, 16, 19, 20, 21, 26, 34, 35, 36, 38, 40, 71, 72, 84, 91, 98, 100, 105, 108, 110, 114, 117, 119, 157, 167, 177, 187, 192, 207, 211, 246, 275, 283, 293, 300, 319, 320, 357, 384, 435, 550, 552, 579

Single-Family Detached Housing (210)

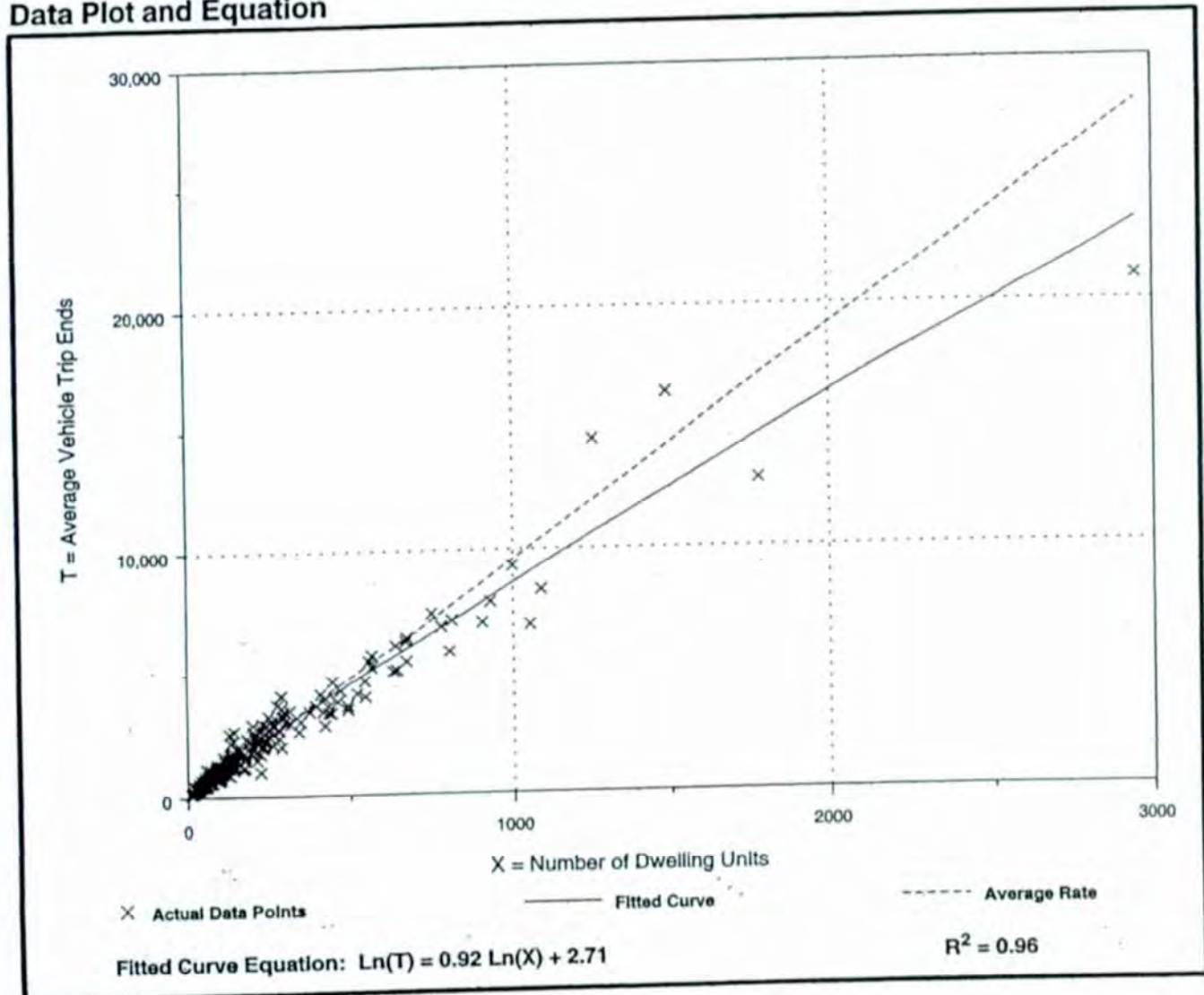
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Number of Studies: 350
Avg. Number of Dwelling Units: 197
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.57	4.31 - 21.85	3.69

Data Plot and Equation



Single-Family Detached Housing (210)

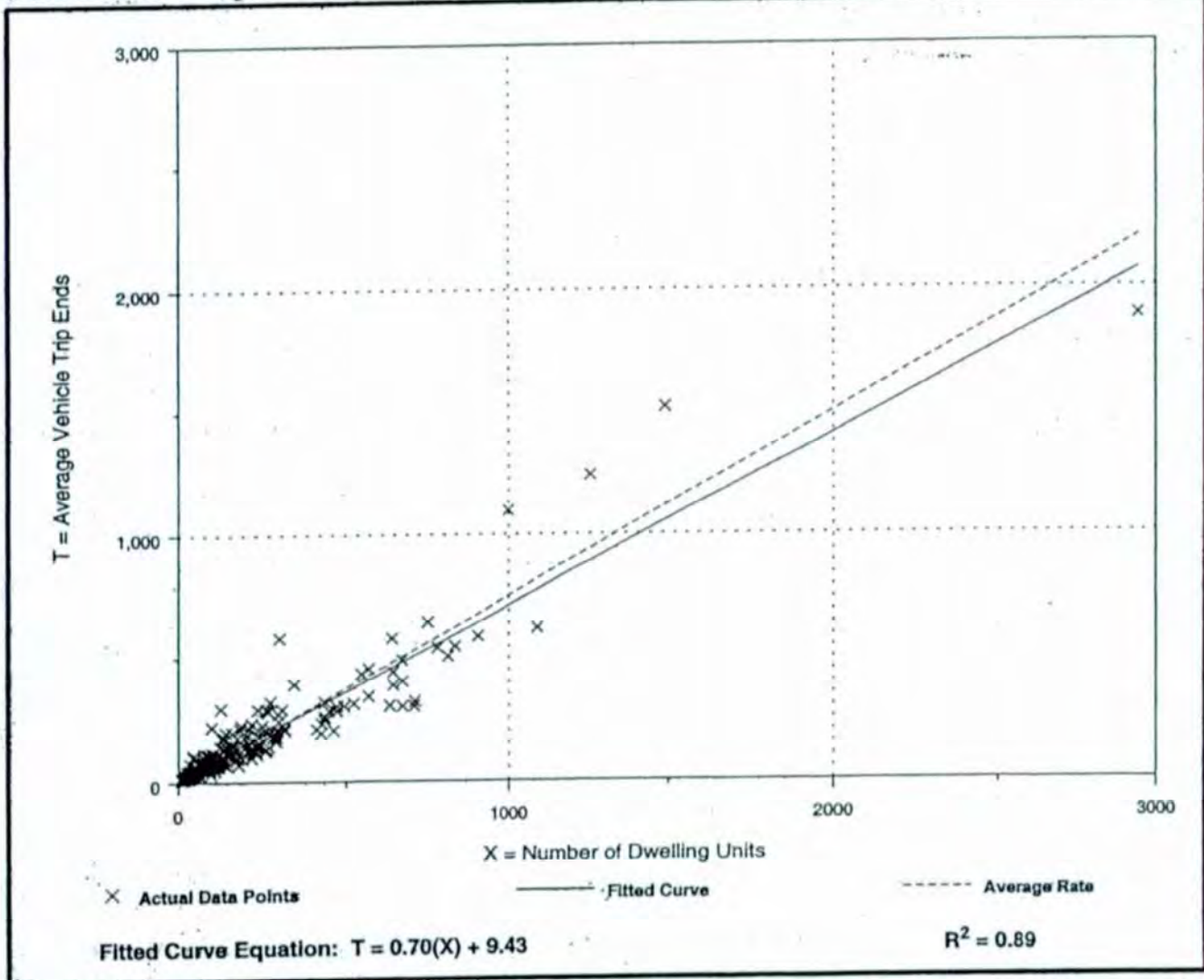
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Number of Studies: 274
Avg. Number of Dwelling Units: 201
Directional Distribution: 25% entering, 75% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.75	0.33 - 2.27	0.90

Data Plot and Equation



Single-Family Detached Housing (210)

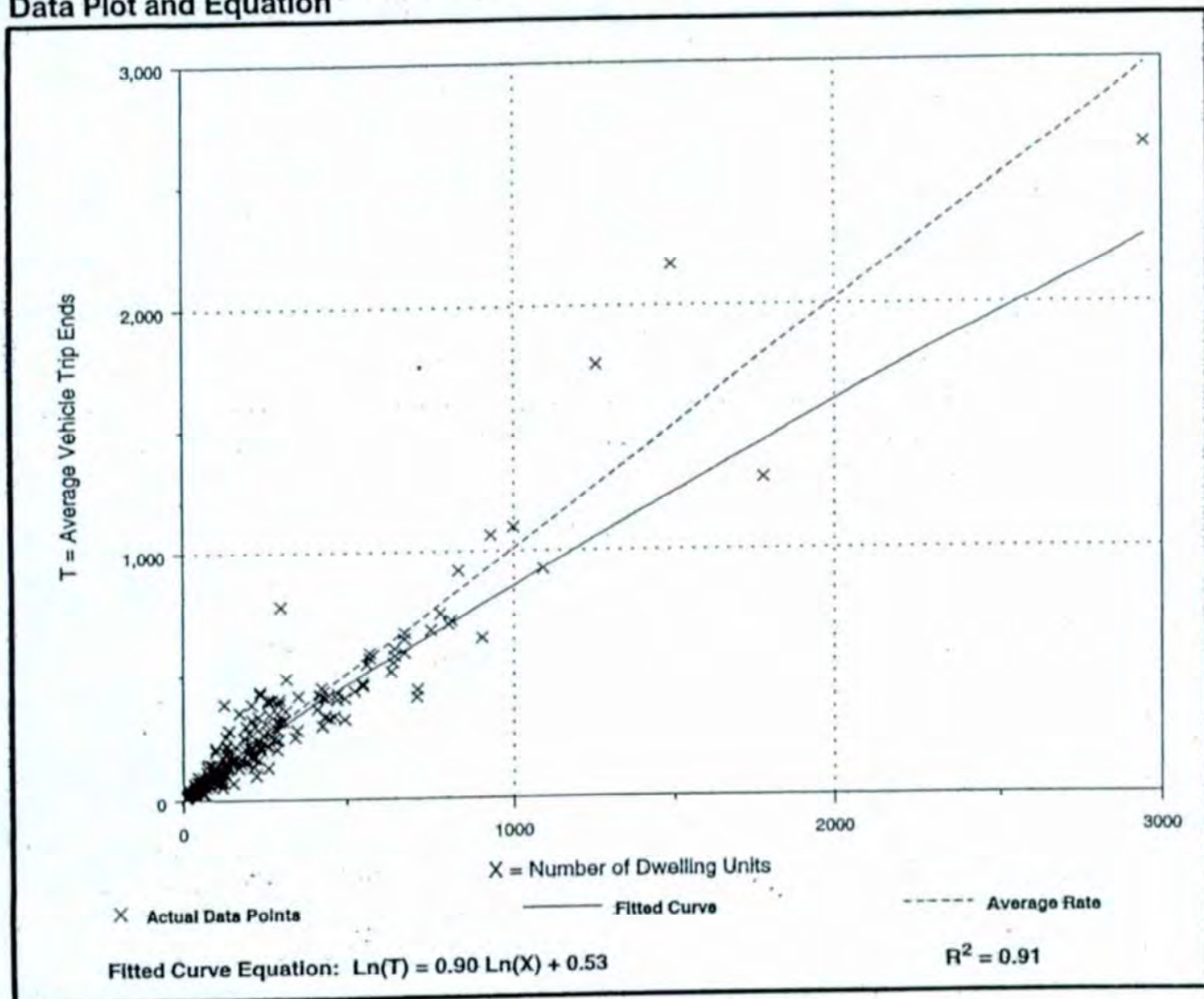
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 302
Avg. Number of Dwelling Units: 214
Directional Distribution: 63% entering, 37% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
1.01	0.42 - 2.98	1.05

Data Plot and Equation



Land Use: 947

Self-Service Car Wash

Description

Self-service car washes allow manual cleaning of vehicles by providing stalls to park and wash the vehicles. Automated car wash (Land Use 948) is a related use.

Additional Data

The sites were surveyed from the late 1960s to the 2000s in Colorado, New Jersey and South Dakota.

Source Numbers

171, 178, 358, 359, 550

Land Use: 947

Self-Service Car Wash

Independent Variables with One Observation

The following trip generation data are for independent variables with only one observation. This information is shown in this table only; there are no related plots for these data.

Users are cautioned to use data with care because of the small sample size.

<u>Independent Variable</u>	<u>Trip Generation Rate</u>	<u>Size of Independent Variable</u>	<u>Number of Studies</u>	<u>Directional Distribution</u>
Wash Stalls				
Weekday	108.00	5	1	50% entering, 50% exiting
Weekday a.m. Peak Hour of Generator	8.00	5	1	50% entering, 50% exiting
Weekday p.m. Peak Hour of Generator	8.00	5	1	50% entering, 50% exiting
Saturday	132.80	5	1	50% entering, 50% exiting

Self-Service Car Wash (947)

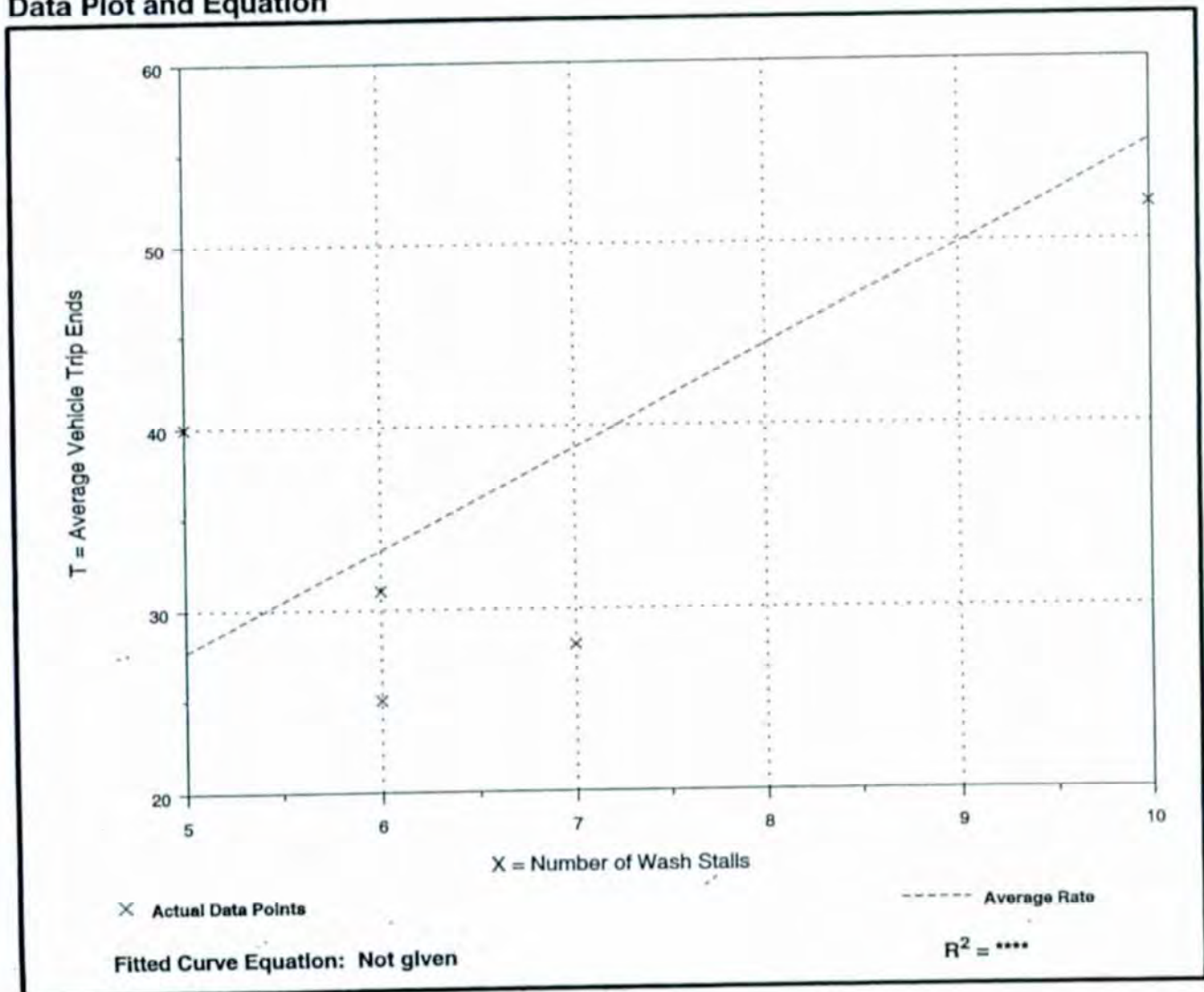
Average Vehicle Trip Ends vs: Wash Stalls
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

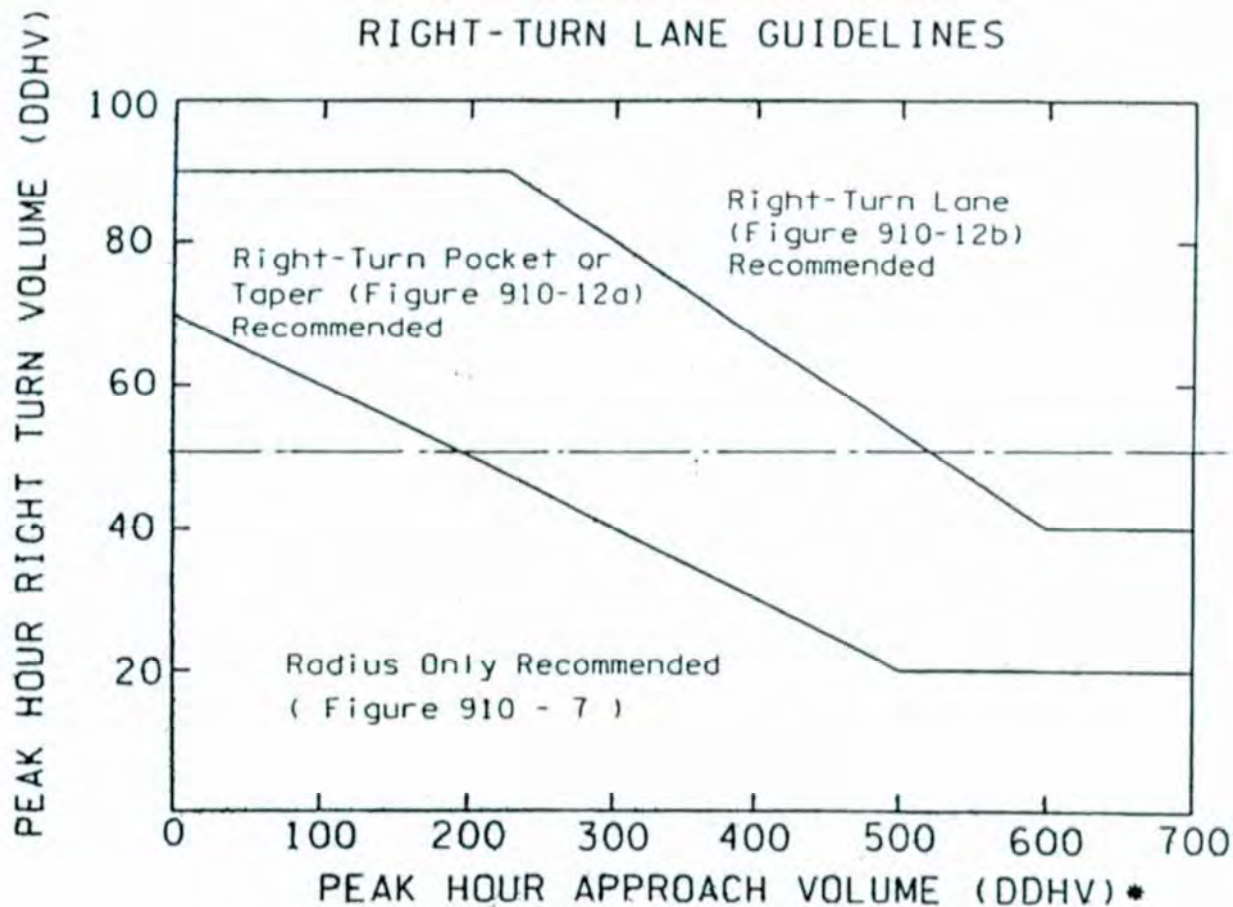
Number of Studies: 6
Average Num. of Wash Stalls: 7
Directional Distribution: 51% entering, 49% exiting

Trip Generation per Wash Stall

Average Rate	Range of Rates	Standard Deviation
5.54	4.00 - 8.00	2.67

Data Plot and Equation





• For two lane highways, use the peak hour approach volume (through + right turn).

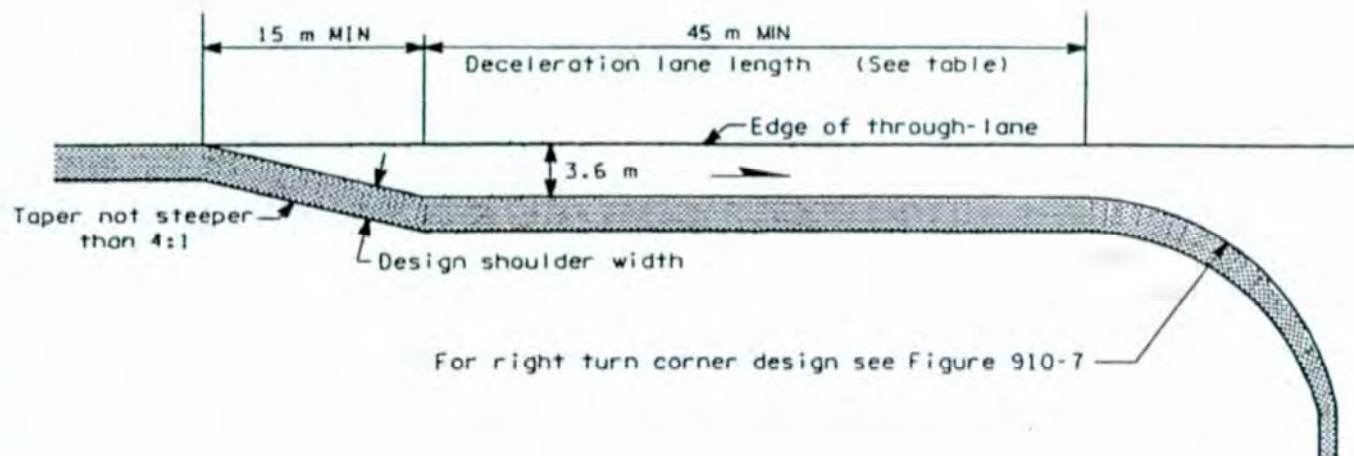
For multilane, high speed (posted at 45 mph or above) highways, use the right lane peak hour approach volume (through + right turn).

Note: When all three of the following conditions are met, the right turn DDHV is reduced by 20 VPH.

1. Posted speed 45 mph or under.
2. Right-turn volume greater than 40 VPH.
3. Total approach volume less than 300 VPH.

Right-Turn Lane Guidelines

Figure 910-11
(Metric)



Minimum Deceleration Lane Length (m)			
Highway Design Speed (mph)	Turning Traffic Design Speed (mph)		
	Stop *	15	20
30	70	60	50
40	100	85	80
50	130	120	115
60	165	155	145
70	190	180	175

Adjustment Multiplier for Grades Greater Than 3%		
Percent Grade	Upgrade	Downgrade
3% to less than 5%	0.9	1.2
5% or more	0.8	1.35

* For use when the turning traffic is likely to stop before completing the turn. (for example - where pedestrians are present.)

Right-Turn Lane
Figure 910-12b
(Metric)

TRAFFIC VOLUME SUMMARY

PROJECT Mitchell Rzone

DATE April 25 05 DAY Mon

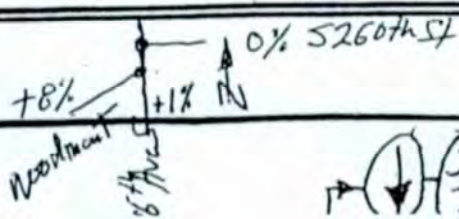
INTERSECTION OF: 167th Ave S

AND Woodmont Dr / S 260th

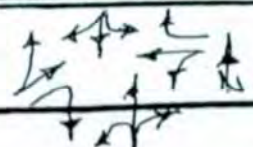
TIME 400 TO 5 45 PM

P = PEAK HOUR

Sunny & Dry

[illegible]

Fire engine NBc 5:25



29.6 m²

TRAFFIC VOLUME SUMMARY

PROJECT Mitchell Rezone

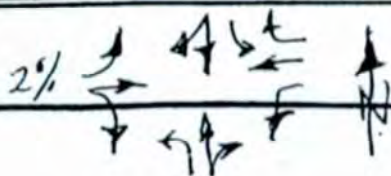
DATE April 27, 2005 DAY Tues

INTERSECTION OF: 5272nd Street

AND 16th Avenue S

TIME 4⁰⁰ TO 5⁴⁵

P = PEAK HOUR

[illegible]

TRAFFIC VOLUME SUMMARY

PROJECT Mitchell/Overson Rezone DATE 4/20/05 DAY Wed
INTERSECTION OF: S 260th Street AND Pacific Hwy South

TIME 345 TO 545 PM

P = PEAK HOUR

Sunny & Dry

[illegible]

$+4\% \leftarrow A \rightarrow EB$ WB $\rightarrow +3\%$ $\leftarrow$
 $\nwarrow \uparrow \rightarrow 0\%$ $\rightarrow NB$ $\nwarrow \swarrow$ $SB - 3\%$

25 mi

TRAFFIC VOLUME SUMMARY

DATE 4/26/05 DAY TUES

AND 5268th Street

P = PEAK HOUR

Slippery & Dry

[illegible]

TRAFFIC VOLUME SUMMARY

PROJECT Mitchell/Owson Rezone DATE 4/19/05 DAY Tue
INTERSECTION OF: S. 272nd Street AND Pacific Hwy 5

TIME 7M 345 TO 545 PM

P = PEAK HOUR

Sunny & Dry

[illegible]

The Mitchell Rezone
 Woodmont Drive/S. 260th Street/16th Avenue S.
 Current 2005 P.M. Peak Hour File MR-C1P

04/28/05
 13:50:12

IGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 1 -

..ETROAREA	NONCBD
SIMULATION PERIOD	15
VELOFSERVICE	C S
ODELOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	-1.0	.0	1.0	8.0
EDLEVELS	0	0	0	0
ARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
USVOLUMES	0	0	0	0
IGHTTURNONREDS	0	25	0	25
UPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	3	544	63	60	44	55	53	237	85	329	17	6
WIDTHS	.0	11.0	.0	12.0	12.0	.0	.0	11.0	.0	12.0	11.0	.0
LANES	0	1	0	1	1	0	0	1	0	1	1	0
UTILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TRUCKPERCENTS	.0	1.0	.0	.0	.0	.0	.0	1.0	.0	1.0	.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
REQCLEARANCES	5.0	5.0	5.0	3.0	3.0	3.0	5.0	5.0	5.0	3.0	3.0	3.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
STARTUPLST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
INDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	0	1637	0	1615	1849	0	0	1582	0	1535	1739	0

Phasing Parameters

SEQUENCES	77	77				
PERMISSIVES	NO	NO	NO	NO	LEADLAGS	NONE
OVERLAPS	YES	YES	YES	YES	OFFSET	.00
YCLES	80	100	10		PEDTIME	.0
GREENTIMES	36.30	23.16	5.24	19.30		
YELLOWTIMES	5.00	5.00	3.00	3.00		
CRITICALS	2	8	5	10		

urrent 2005 P.M. Peak Hour

13:49:41

File MR-C1P

IGNAL97/TEAPAC [Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 1 -

Degree of Saturation (v/c)	1.08	Vehicle Delay	115.5	Level of Service	F
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q 77 */**	Phase 1	Phase 2	Phase 3	Phase 4
	<pre> * * * * * * < * * * > v </pre>	<pre> ^ < * * * > * * * * * * </pre>	<pre> ^ + + + + < * * * * * * * * v </pre>	<pre> ^ + + + + + + + + > * * * * v </pre>
	G/C= .363 G= 36.3" Y+R= 5.0" OFF= .0%	G/C= .232 G= 23.2" Y+R= 5.0" OFF=41.3%	G/C= .052 G= 5.2" Y+R= 3.0" OFF=69.5%	G/C= .193 G= 19.3" Y+R= 3.0" OFF=77.7%

C=100 sec G= 84.0 sec = 84.0% Y=16.0 sec = 16.0% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C		Service Rate		Adj		HCM	L	90% Max
		Reqd	Used	@C (vph)	@E	Volume	v/c	Delay	S	Queue

N Approach

104.3 F

LT+TH+RT	11/1	.464	.363	465	594	662	1.114	104.3	*F	589 ft
----------	------	------	------	-----	-----	-----	-------	-------	----	--------

S Approach

120.2 F

¹ LT+TH+RT	11/1	.343	.232	192	360	408	1.115	120.2	*F	437 ft
-----------------------	------	------	------	-----	-----	-----	-------	-------	----	--------

E Approach

140.6 F

RT	12/1	.176	.052	1	66	38	.447	49.7	D	50 ft
LT+TH	12/1	.194	.052	1	77	108	1.113	172.6	*F	142 ft

W Approach

120.6 F

RT	12/1	.308	.193	85	283	330	1.115	127.2	*F	372 ft
LT+TH	11/1	.171	.193	99	325	25	.074	33.1	C	28 ft

The Mitchell Rezone

Woodmont Drive/S. 260th Street/16th Avenue S. (Improved)
 007 P.M. Peak Hour without Project

05/03/05
 17:09:55

File MR-H1P

SIGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 1 -

RETROAREA	NONCBD
SIMULATION PERIOD	15
LEVELOFSERVICE	C S
MODELOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	-1.0	.0	1.0	8.0
EDLEVELS	0	0	0	0
ARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
USVOLUMES	0	0	0	0
IGHTTURNONREDS	0	25	0	25
UPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	3	583	67	64	47	59	57	254	91	352	18	6
WIDTHS	.0	11.0	12.0	12.0	12.0	.0	.0	11.0	12.0	12.0	11.0	.0
LANES	0	1	1	1	1	0	0	1	1	1	1	0
UTILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
RUCKPERCENTS	.0	1.0	.0	.0	.0	.0	.0	1.0	.0	1.0	.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
CTUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
EQCLEARANCES	5.0	5.0	5.0	3.0	3.0	3.0	5.0	5.0	5.0	3.0	3.0	3.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TARTUPOST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
WSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	0	1826	1814	1615	1849	0	0	1763	1796	1535	1741	0

Phasing Parameters

SEQUENCES	77	77				
PERMISSIVES	NO	NO	NO	NO	LEADLAGS	NONE
OVERLAPS	YES	YES	YES	YES	OFFSET	.00
YCLES	90	100	10		PEDTIME	.0
GREENTIMES	35.13	19.31	6.27	23.29		
YELLOWTIMES	5.00	5.00	3.00	3.00		
CRITICALS	2	8	5	10		

The Mitchell Rezone
 Woodmont Drive/S. 260th Street/16th Avenue S. (Improved)
 007 P.M. Peak Hour without Project File MR-H1P

05/03/05
 17:09:35

SIGNAL97/TEAPAC[Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 1 -
 Degree of Saturation (v/c) .88 Vehicle Delay 73.3 Level of Service E

Sq 77 */**	Phase 1	Phase 2	Phase 3	Phase 4
	* * + * * + < * * + > V	^ < + * * > + * * + * *	^ + + + + < * * * * * * * * V	^ + + + + + + + + > * * * * V
	G/C= .351 G= 35.1" Y+R= 5.0" OFF= .0%	G/C= .193 G= 19.3" Y+R= 5.0" OFF=40.1%	G/C= .063 G= 6.3" Y+R= 3.0" OFF=64.4%	G/C= .233 G= 23.3" Y+R= 3.0" OFF=73.7%

C=100 sec G= 84.0 sec = 84.0% Y=16.0 sec = 16.0% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd Used	Service Rate @C (vph) @E	Adj Volume	v/c	HCM Delay	L S	90% Max Queue
N Approach							61.3	E+
TH+RT	11/1	.414 .351	500 642	637	.992	65.8	*E+	577 ft
LT	12/1	.184 .351	495 637	73	.115	22.0	C+	66 ft
S Approach							75.5	E
TH+RT	11/1	.286 .193	101 329	338	.994	87.4	*F	381 ft
LT	12/1	.192 .193	103 337	99	.285	34.9	C	111 ft
E Approach							106.2	F
RT	12/1	.177 .063	1 81	42	.416	47.9	D	55 ft
LT+TH	12/1	.196 .063	1 95	115	.991	127.6	*F	150 ft
W Approach							79.7	E
RT	12/1	.321 .233	189 351	355	.992	83.5	*F	380 ft
LT+TH	11/1	.171 .233	217 401	27	.067	30.0	C	29 ft

The Mitchell Rezone
 Woodmont Drive/S. 260th Street/16th Avenue S. (Improved)
 007 P.M. Peak Hour with Project File MR-P1P

06/20/06
 14:33:03

SIGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 1 -

METROAREA	NONCBD
SIMULATION PERIOD	15
LEVEL OF SERVICE	C S
MODE LOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	-1.0	.0	1.0	8.0
DELEVELS	0	0	0	0
PARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
USVOLUMES	0	0	0	0
RIGHTTURNONREDS	0	25	0	25
UPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	3	585	67	64	47	59	58	256	93	352	18	6
WIDTHS	.0	11.0	12.0	12.0	12.0	.0	.0	11.0	12.0	12.0	11.0	.0
LANES	0	1	1	1	1	0	0	1	1	1	1	0
UTILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TRUCKPERCENTS	.0	1.0	.0	.0	.0	.0	.0	1.0	.0	1.0	.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
REQCLEARANCES	5.0	5.0	5.0	3.0	3.0	3.0	5.0	5.0	5.0	3.0	3.0	3.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
STARTUPLIST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ENDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	0	1826	1814	1615	1849	0	0	1762	1796	1535	1741	0

Phasing Parameters

SEQUENCES	77	77				
PERMISSIVES	NO	NO	NO	NO	LEADLAGS	NONE
OVERLAPS	YES	YES	YES	YES	OFFSET	.00
CYCLES	90	100	10		PEDTIME	.0
GREENTIMES	35.13	19.35	6.26	23.26		
YELLOWTIMES	5.00	5.00	3.00	3.00		
CRITICALS	2	8	5	10		

The Mitchell Rezone

oodmont Drive/S. 260th Street/16th Avenue S. (Improved)
007 P.M. Peak Hour with Project File MR-P1P

06/20/06
14:32:26

IGNAL97/TEAPAC[Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 1 -

Degree of Saturation (v/c) .89 Vehicle Delay 74.1 Level of Service E

q 77 */**	Phase 1	Phase 2	Phase 3	Phase 4
/ \ orth 	* * + * * + <* * +> v	 ^ <+ * * > + * * + * *	 ^ ++++ <***** ***** v	 ^ ++++ ++++> ***** v
	G/C= .351 G= 35.1" Y+R= 5.0" OFF= .0%	G/C= .193 G= 19.4" Y+R= 5.0" OFF=40.1%	G/C= .063 G= 6.3" Y+R= 3.0" OFF=64.5%	G/C= .233 G= 23.3" Y+R= 3.0" OFF=73.7%

C=100 sec G= 84.0 sec = 84.0% Y=16.0 sec = 16.0% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd	Used	Service Rate @C (vph)	Adj @E Volume	v/c	HCM Delay	L S	90% Max Queue
------------	-----------------	-------------	------	--------------------------	---------------------	-----	--------------	--------	------------------

N Approach

62.1 E+

TH+RT	11/1	.415	.351	500	642	639	.995	66.6	*E+	579 ft
LT	12/1	.184	.351	495	637	73	.115	22.0	C+	66 ft

S Approach

76.7 E

TH+RT	11/1	.287	.193	102	330	341	1.000	89.1	*F	384 ft
LT	12/1	.193	.193	104	338	101	.290	34.9	C	113 ft

E Approach

106.2 F

RT	12/1	.177	.063	1	81	42	.416	47.9	D	55 ft
LT+TH	12/1	.196	.063	1	95	115	.991	127.6	*F	150 ft

W Approach

80.5 F

RT	12/1	.321	.233	188	350	355	.994	84.4	*F	381 ft
LT+TH	11/1	.171	.233	217	401	27	.067	30.0	C	29 ft

The Mitchell Rezone
 . 260th Street/Pacific Highway S.
 urrent (2005) P.M. Peak Hour

04/28/05
 14:16:00

File MR-C2P

IGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 1 -

..ETROAREA	NONCBD
SIMULATION PERIOD	15
EVELOFSERVICE	C S
ODELOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	-1.0	.0	1.0	.0
EDLEVELS	5	5	5	5
_ARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
-USVOLUMES	0	0	0	0
IGHTTURNONREDS	15	15	15	0
UPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
OLUMES	74	1219	225	127	118	260	164	546	109	66	112	53
IDTHS	12.0	24.0	12.0	.0	12.0	12.0	12.0	24.0	12.0	.0	12.0	12.0
LANES	1	2	1	0	1	1	1	2	1	0	1	1
"TILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
RUCKPERCENTS	.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.0	1.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
CTUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
..EQCLEARANCES	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TARTUPOST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
ATURATIONFLOWS	1619	3592	1796	0	1741	1787	1587	3556	1778	0	1781	1805

Phasing Parameters

SEQUENCES	87	87						
PERMISSIVES	NO	NO	NO	NO		LEADLAGS	NONE	NONE
OVERLAPS	YES	YES	YES	YES		OFFSET	.00	1
YCLES	100	120	10			PEDTIME	.0	0
GREENTIMES	17.82	17.07	10.13	20.06	14.91			
YELLOWTIMES	4.00	4.00	4.00	4.00	4.00			
CRITICALS	3	2	9	6	11			

The Mitchell Rezone
 . 260th Street/Pacific Highway S.
 Current (2005) P.M. Peak Hour

04/28/05
 14:15:17

File MR-C2P

SIGNAL97/TEAPAC[Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 1 -
 Degree of Saturation (v/c) .74 Vehicle Delay 40.1 Level of Service D+

Signal	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
87 */*					
/ \	+ + *	+ *		^	+
	+ + *	+ *		++++	+
	<+ + * >	<+ *		<++++	<+ ^
orth	V	V		****	
				V	++++
		+ + >	< * + + >	+ >	***** >
		+ +	* + +	+	*****
		+ +	* + +	+	V
	G/C= .178 G= 17.8" Y+R= 4.0" OFF= .0%	G/C= .171 G= 17.1" Y+R= 4.0" OFF=21.8%	G/C= .101 G= 10.1" Y+R= 4.0" OFF=42.9%	G/C= .201 G= 20.1" Y+R= 4.0" OFF=57.0%	G/C= .149 G= 14.9" Y+R= 4.0" OFF=81.1%
C=100 sec G= 80.0 sec = 80.0% Y=20.0 sec = 20.0% Ped= .0 sec = .0%					

Lane Group	Width/Lanes	g/C Req'd	g/C Used	Service Rate @C (vph)	Adj @E Volume	v/c	HCM Delay	L S	90% Max Queue
N Approach									42.9 D+
RT	12/1	.184	.578	873	936	.068	9.3	A	38 ft
TH	24/2	.412	.389	1226	1397	.948	43.3	*D+	566 ft
LT	12/1	.242	.178	52	307	.766	49.7	*D	281 ft
S Approach									28.7 C
RT	12/1	.219	.553	807	877	.185	11.2	B+	101 ft
TH	24/2	.255	.312	868	1110	.534	28.9	C	285 ft
LT	12/1	.198	.101	1	159	.656	51.6	*D	148 ft
E Approach									46.8 D
TH+RT	12/1	.248	.201	124	339	.716	44.2	D+	279 ft
LT	12/1	.259	.201	128	350	.788	49.1	*D	316 ft
W Approach									47.5 D
TH+RT	12/1	.221	.149	1	249	.729	50.4	*D	230 ft
LT	12/1	.180	.149	1	252	.216	37.8	D+	69 ft

The Mitchell Rezone
 3. 260th Street/Pacific Highway S.
 2007 P.M. Peak Hour without Project

04/28/05
 14:18:23

File MR-H2P

SIGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 1 -

METROAREA	NONCBD
SIMULATION PERIOD	15
LEVELOFSERVICE	C S
NODELOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	-1.0	.0	1.0	.0
PEDLEVELS	5	5	5	5
PARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
BUSVOLUMES	0	0	0	0
RIGHTTURNONREDS	15	15	15	0
UPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	79	1306	241	136	126	279	176	585	117	71	120	57
WIDTHS	12.0	24.0	12.0	.0	12.0	12.0	12.0	24.0	12.0	.0	12.0	12.0
LANES	1	2	1	0	1	1	1	2	1	0	1	1
UTILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TRUCKPERCENTS	.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.0	1.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
REQCLEARANCES	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
STARTUPOST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ENDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	1619	3592	1796	0	1741	1787	1587	3556	1778	0	1781	1805

Phasing Parameters

SEQUENCES	87	87										
PERMISSIVES	NO	NO	NO	NO			LEADLAGS		NONE	NONE		
OVERLAPS	YES	YES	YES	YES			OFFSET		.00	1		
CYCLES	100	120	10				PEDTIME		.0	0		
GREENTIMES	17.82	17.07	10.13	20.06	14.91							
YELLOWTIMES	4.00	4.00	4.00	4.00	4.00							
CRITICALS	3	2	9	6	11							

The Mitchell Rezone
 . 260th Street/Pacific Highway S.
 007 P.M. Peak Hour with Project

06/20/06
 14:34:58

File MR-P2P

IGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 1 -

RETROAREA	NONCBD
SIMULATION PERIOD	15
EVELOFSERVICE	C S
ODELOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	-1.0	.0	1.0	.0
EDLEVELS	5	5	5	5
ARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
USVOLUMES	0	0	0	0
IGHTTURNONREDS	15	15	15	0
UPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
OLUMES	79	1343	241	136	126	282	176	585	117	72	120	58
IDTHS	12.0	24.0	12.0	.0	12.0	12.0	12.0	24.0	12.0	.0	12.0	12.0
LANES	1	2	1	0	1	1	1	2	1	0	1	1
TILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
UCKPERCENTS	.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.0	1.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ITUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
EQCLEARANCES	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TARTUPOST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
ACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
STOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
ATURATIONFLOWS	1619	3592	1796	0	1741	1787	1587	3556	1778	0	1780	1805

Phasing Parameters

EQUENCES	87	87						
PERMISSIVES	NO	NO	NO	NO		LEADLAGS	NONE	NONE
OVERLAPS	YES	YES	YES	YES		OFFSET	.00	1
YCLES	100	120	10			PEDTIME	.0	0
GREENTIMES	17.82	17.07	10.13	20.06	14.91			
YELLOWTIMES	4.00	4.00	4.00	4.00	4.00			
CRITICALS	3	2	9	6	11			

he Mitchell Rezone
 3. 260th Street/Pacific Highway S.
 2007 P.M. Peak Hour with Project

06/20/06
 14:34:36

File MR-P2P

SIGNAL97/TEAPAC[Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 1 -
 Degree of Saturation (v/c) .81 Vehicle Delay 52.6 Level of Service D

3q 87 **/**	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
/ \	+ + * + + * <+ + *> v	+ * + * <+ * v		^ ++++ <++++ **** v	+ + <+ ^ ++++ *****> ***** v
North 		^ + +> + + + +	^ <* + +> * + + * + +	+> + +	
	G/C= .178 G= 17.8" Y+R= 4.0" OFF= .0%	G/C= .171 G= 17.1" Y+R= 4.0" OFF=21.8%	G/C= .101 G= 10.1" Y+R= 4.0" OFF=42.9%	G/C= .201 G= 20.1" Y+R= 4.0" OFF=57.0%	G/C= .149 G= 14.9" Y+R= 4.0" OFF=81.1%

C=100 sec G= 80.0 sec = 80.0% Y=20.0 sec = 20.0% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd Used	Service Rate @C (vph) @E	Adj Volume	v/c	HCM Delay	L S	90% Max Queue
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N Approach

64.6 E+

RT	12/1	.186	.578	873	936	70	.075	9.3	A	41 ft
TH	24/2	.445	.389	1226	1397	1467	1.050	69.0	*E	626 ft
LT	12/1	.249	.178	52	307	262	.819	54.9	*D	301 ft

S Approach

29.6 C

RT	12/1	.223	.553	807	877	175	.200	11.4	B+	109 ft
TH	24/2	.264	.312	868	1110	636	.573	29.5	C	306 ft
LT	12/1	.201	.101	1	159	127	.706	55.4	*E+	159 ft

E Approach

52.9 D

TH+RT	12/1	.257	.201	124	339	269	.771	47.9	D	300 ft
LT	12/1	.270	.201	127	349	308	.860	57.3	*E+	344 ft

W Approach

51.3 D

TH+RT	12/1	.227	.149	1	248	208	.785	55.3	*E+	247 ft
LT	12/1	.181	.149	1	252	63	.234	38.0	D+	74 ft

The Mitchell Rezone
 . 272nd Street/Pacific Highway S.
 urrent (2005) P.M. Hour

04/28/05
 14:27:42

File MR-C3P

IGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 3 - 1

ETROAREA	NONCBD
SIMULATION PERIOD	15
EVELOFSERVICE	C S
ODELOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	-1.0	.0	1.0	.0
EDLEVELS	5	5	5	5
ARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
USVOLUMES	0	0	0	0
IGHTTURNONREDS	15	15	15	0
UPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	110	1046	292	127	477	440	328	646	123	118	329	106
IDTHS	12.0	24.0	12.0	.0	24.0	12.0	12.0	24.0	12.0	12.0	12.0	12.0
LANES	1	2	1	0	2	1	1	2	1	1	1	1
UTILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TRUCKPERCENTS	.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.0	1.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
CTUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
EQCLEARANCES	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TARTUPLOST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	1619	3592	1796	0	3470	1787	1587	3556	1778	1610	1881	1805

Phasing Parameters

SEQUENCES	87	ALL				LEADLAGS	NONE	NONE
PERMISSIVES	NO	NO	NO	NO		OFFSET	.00	1
OVERLAPS	YES	YES	YES	YES		PEDTIME	.0	0
YCLES	100	120	10					
GREENTIMES	21.62	13.07	9.23	32.76	23.31			
YELLOWTIMES	4.00	4.00	4.00	4.00	4.00			
CRITICALS	3	2	9	6	11			

he Mitchell Rezone
 . 272nd Street/Pacific Highway S.
 Current (2005) P.M. Hour

04/28/05
 14:27:22

File MR-C3P

SIGNAL97/TEAPAC[Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 3 - 1

Degree of Saturation (v/c) .83 Vehicle Delay 61.2 Level of Service E+

g 87 **/**	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
/ \ orth 	+ + * + + * <+ + *> v	+ * + * <+ * v		^ ++++ <++++ ***** v	+ + <+ ^ ++++ *****> ++++ v
	G/C= .180 G= 21.6" Y+R= 4.0" OFF= .0%	G/C= .109 G= 13.1" Y+R= 4.0" OFF=21.4%	G/C= .077 G= 9.2" Y+R= 4.0" OFF=35.6%	G/C= .273 G= 32.8" Y+R= 4.0" OFF=46.6%	G/C= .194 G= 23.3" Y+R= 4.0" OFF=77.2%

C=120 sec G=100.0 sec = 83.3% Y=20.0 sec = 16.7% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd Used	Service Rate @C (vph) @E	Adj Volume	v/c	HCM Delay	L S	90% Max Queue
N Approach							65.3	E+
RT	12/1	.264 .550	793 890	103	.116	13.0	B+	77 ft
TH	24/2	.398 .322	694 1158	1137	.982	62.4	*E+	646 ft
LT	12/1	.319 .180	1 301	317	.978	93.0	*F	436 ft
S Approach							54.7	D
RT	12/1	.344 .526	728 834	340	.408	17.5	B	270 ft
TH	24/2	.325 .219	1 779	702	.901	59.2	E+	460 ft
LT	12/1	.269 .077	1 108	134	.978	125.3	*F	207 ft
E Approach							57.0	E+
TH+RT	24/2	.318 .273	309 948	640	.675	40.8	D+	390 ft
LT	12/1	.379 .273	152 481	478	.980	78.6	*E	583 ft
W Approach							70.8	E
RT	12/1	.271 .194	1 291	128	.409	43.2	D+	172 ft
TH	12/1	.327 .194	1 344	358	.981	90.0	*F	484 ft
LT	12/1	.264 .194	1 330	115	.328	42.1	D+	154 ft

The Mitchell Rezone
 . 272nd Street/Pacific Highway S.
 007 P.M. Peak Hour without Project

04/28/05
 14:30:02

File MR-H3P

IGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 3 - 1

..ETROAREA	NONCBD
SIMULATION PERIOD	15
EVELOFSERVICE	C S
ODELOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	-1.0	.0	1.0	.0
EDLEVELS	5	5	5	5
ARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
USVOLUMES	0	0	0	0
IGHTTURNONREDS	15	15	15	0
UPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
OLUMES	118	1121	313	136	511	471	351	692	132	126	352	114
IDTHS	12.0	24.0	12.0	.0	24.0	12.0	12.0	24.0	12.0	12.0	12.0	12.0
LANES	1	2	1	0	2	1	1	2	1	1	1	1
TILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
RUCKPERCENTS	.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.0	1.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
CTUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
EQCLEARANCES	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TARTUPLOST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
ATURATIONFLOWS	1619	3592	1796	0	3470	1787	1587	3556	1778	1610	1881	1805

Phasing Parameters

EQUENCES	87	ALL					
PERMISSIVES	NO	NO	NO	NO	LEADLAGS	NONE	NONE
OVERLAPS	YES	YES	YES	YES	OFFSET	.00	1
YCLES	100	120	10		PEDTIME	.0	0
GREENTIMES	21.62	13.07	9.23	32.76	23.31		
YELLOWTIMES	4.00	4.00	4.00	4.00	4.00		
CRITICALS	3	2	9	6	11		

The Mitchell Rezone
 S. 272nd Street/Pacific Highway S.
 2007 P.M. Peak Hour without Project

File MR-H3P

04/28/05
 14:29:38

SIGNAL97/TEAPAC[Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 3 - 1

Degree of Saturation (v/c) .89 Vehicle Delay 73.7 Level of Service E

Seq 87 **/**	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
	+ + * + + * <+ + *> V	+ * + * <+ * V	^ ^ <* + +> * + + * + +	^ + + + + +	+ + ^ + + +
	G/C= .180 G= 21.6" Y+R= 4.0" OFF= .0%	G/C= .109 G= 13.1" Y+R= 4.0" OFF=21.4%	G/C= .077 G= 9.2" Y+R= 4.0" OFF=35.6%	G/C= .273 G= 32.8" Y+R= 4.0" OFF=46.6%	G/C= .194 G= 23.3" Y+R= 4.0" OFF=77.2%

C=120 sec G=100.0 sec = 83.3% Y=20.0 sec = 16.7% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/c Reqd Used	Service Rate @C (vph) @E	Adj Volume	v/c	HCM Delay	L S	90% Max Queue
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N Approach

83.5 F

RT	12/1	.267	.550	793	890	112	.126	13.1	B+	84 ft
TH	24/2	.414	.322	694	1158	1218	1.052	81.8	*F	692 ft
LT	12/1	.327	.180	1	301	340	1.049	112.7	*F	467 ft

S Approach

63.6 E+

RT	12/1	.355	.526	728	834	365	.438	17.9	B	290 ft
TH	24/2	.333	.219	1	779	752	.965	70.4	E	492 ft
LT	12/1	.271	.077	1	108	143	1.044	144.4	*F	221 ft

E Approach

66.1 E+

TH+RT	24/2	.325	.273	309	947	687	.725	42.3	D+	419 ft
LT	12/1	.392	.273	152	481	512	1.049	97.9	*F	624 ft

W Approach

82.2 F

RT	12/1	.274	.194	1	291	137	.438	43.6	D+	184 ft
TH	12/1	.335	.194	1	344	383	1.049	109.0	*F	517 ft
LT	12/1	.266	.194	1	330	124	.353	42.4	D+	167 ft

The Mitchell Rezone

. 272nd Street/Pacific Highway S. with revised geometrics.
 007 P.M. Peak Hour with Project

06/21/06

15:07:12

IGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 3 - 1

ETROAREA	NONCBD
3IMULATION PERIOD	15
EVELOFSERVICE	C S
ODELOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	-1.0	.0	1.0	.0
EDLEVELS	5	5	5	5
ARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
JSVOLUMES	0	0	0	0
IGHTTURNONREDS	15	15	15	0
JPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
OLUMES	118	1132	339	136	527	471	351	692	133	126	352	114
IDTHS	12.0	24.0	12.0	12.0	24.0	12.0	12.0	24.0	12.0	12.0	12.0	12.0
LANES	1	2	1	1	2	1	1	2	1	1	1	1
TILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
UCKPERCENTS	.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.0	1.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
TUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
EQCLEARANCES	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TARTUPOST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
ACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
STOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
ATURATIONFLOWS	1619	3592	1796	1595	3574	1787	1587	3556	1778	1610	1881	1805

Phasing Parameters

EQUENCES	84	ALL				
PERMISSIVES	NO	NO	NO	NO	LEADLAGS	NONE
VERLAPS	YES	YES	YES	YES	OFFSET	.00
YCLES	110	120	10		PEDTIME	.0
REENTIMES	23.26	11.83	9.26	32.53		
YELLOWTIMES	4.00	4.00	4.00	4.00		
RITICALS	3	2	9	6		

The Mitchell Rezone

3. 272nd Street/Pacific Highway S. with revised geometrics.
007 P.M. Peak Hour with Project

06/21/06
15:06:53

File MR-P3P

IGNAL97/TEAPAC[Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 3 - 1
Degree of Saturation (v/c) .89 Vehicle Delay 77.6 Level of Service E

3q 84 */**	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
/ \	+ + * ^ + + * + + + + <+ + * > v	+ * + * <+ * v		^ + + + + + v	^ + + + + + <+ + + + +
North		+ + > + + + +	< * + + > * + + * + +	+ + + + + + > + +	* + + + + > + + + + + v
	G/C= .194 G= 23.3" Y+R= 4.0" OFF= .0%	G/C= .099 G= 11.8" Y+R= 4.0" OFF=22.7%	G/C= .077 G= 9.3" Y+R= 4.0" OFF=35.9%	G/C= .271 G= 32.5" Y+R= 4.0" OFF=47.0%	G/C= .193 G= 23.1" Y+R= 4.0" OFF=77.4%

C=120 sec G=100.0 sec = 83.3% Y=20.0 sec = 16.7% Ped= .0 sec = .0%

Lane Group	Width/Lanes	g/C Req'd	g/C Used	Service Rate @C (vph)	Adj @E	Volume	v/c	HCM Delay	L S	90% Max Queue
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N Approach

84.7 F

RT	12/1	.267	.326	301	527	112	.213	29.5	C	126 ft
TH	24/2	.416	.326	715	1170	1230	1.051	81.3	*F	695 ft
LT	12/1	.337	.194	1	327	368	1.057	112.6	*F	497 ft

S Approach

72.1 E

RT	12/1	.355	.513	704	815	365	.448	18.8	B	298 ft
TH	24/2	.333	.209	1	743	752	1.011	83.1	F	499 ft
LT	12/1	.272	.077	1	108	145	1.058	148.7	*F	224 ft

E Approach

70.8 E

RT	12/1	.273	.420	512	669	132	.197	22.2	C+	128 ft
TH	24/2	.305	.193	1	683	573	.832	55.1	E+	388 ft
LT	12/1	.392	.271	144	477	512	1.058	100.8	*F	626 ft

W Approach

82.5 F

RT	12/1	.274	.193	1	287	137	.442	43.8	D+	184 ft
TH	12/1	.335	.193	1	341	383	1.058	111.9	*F	518 ft
LT	12/1	.266	.271	145	482	124	.254	34.5	C	151 ft

The Mitchell Rezone
 3. 272nd Street/16th Avenue S.
 Current 2005 P.M. Peak Hour

04/28/05
 14:37:16

File MR-C4P

SIGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 4 -

METROAREA		NONCBD
SIMULATION PERIOD		15
LEVELOFSERVICE	C	S
MODELOCATION	0	0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	.0	.0	.0	.0
PEDLEVELS	3	3	0	0
PARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
BUSVOLUMES	0	0	0	0
RIGHTTURNONREDS	0	25	0	0
UPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
VOLUMES	265	387	188	215	368	94	99	107	60	12	155	98
WIDTHS	.0	11.0	11.0	11.0	11.0	11.0	.0	11.0	11.0	.0	11.0	11.0
LANES	0	1	1	1	1	1	0	1	1	0	1	1
UTILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
TRUCKPERCENTS	.0	1.0	.0	.0	1.0	.0	.0	1.0	.0	.0	1.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
ACTUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
REQCLEARANCES	5.0	5.0	5.0	3.0	3.0	3.0	5.0	5.0	5.0	3.0	3.0	3.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
STARTUPLIST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ENDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
DELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NSTOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
SATURATIONFLOWS	0	1714	1136	1559	1818	1073	0	1695	430	0	1800	551

Phasing Parameters

SEQUENCES	11	11					
PERMISSIVES	NO	NO	NO	NO	LEADLAGS	NONE	NONE
OVERLAPS	YES	YES	YES	YES	OFFSET	.00	1
CYCLES	70	90	10		PEDTIME	.0	0
GREENTIMES	38.26	23.74					
YELLOWTIMES	5.00	3.00					
CRITICALS	2	12					

he Mitchell Rezone
 S. 272nd Street/16th Avenue S.
 Current 2005 P.M. Peak Hour

04/28/05
 14:36:53

File MR-C4P

SIGNAL97/TEAPAC[Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 4 -
 Degree of Saturation (v/c) .53 Vehicle Delay 16.1 Level of Service B

Seq	11	Phase 1	Phase 2
/	**/**		
/ \ North 	* * +		^
	* * +		++++
	<* * +>		<++++
	V		++++
		^	V
	<+ + +>	*****	+++++
	+ + +	+++++	
	+ + +	V	
G/C= .547		G/C= .339	
G= 38.3"		G= 23.7"	
Y+R= 5.0"		Y+R= 3.0"	
OFF= .0%		OFF=61.8%	

C= 70 sec G= 62.0 sec = 88.6% Y= 8.0 sec = 11.4% Ped= .0 sec = .0%

Lane Group	Width/Lanes	g/C Req'd	g/C Used	Service Rate @C (vph)	Adj @E	Volume	v/c	HCM Delay	L S	90% Max Queue
N Approach									14.3	B+
TH+RT	11/1	.448	.547	898	937	709	.757	15.9	*B	314 ft
LT	11/1	.242	.547	577	621	204	.329	9.1	A	90 ft
S Approach									8.6	A
TH+RT	11/1	.183	.547	888	927	224	.242	8.4	A	99 ft
LT	11/1	.241	.547	196	235	65	.277	9.1	A	29 ft
E Approach									20.2	C+
RT	11/1	.186	.339	455	529	207	.391	18.1	B	133 ft
TH	11/1	.268	.339	540	617	400	.648	22.0	C+	259 ft
LT	11/1	.152	.339	299	364	102	.280	17.3	B	66 ft
W Approach									19.5	B
TH+RT	11/1	.148	.339	533	610	181	.297	17.3	B	117 ft
LT	11/1	.281	.339	139	182	107	.572	23.2	*C+	69 ft

The Mitchell Rezone
 . 272nd Street/16th Avenue S.
 007 P.M. Peak Hour without Project

04/28/05
 14:39:47
 File MR-H4P

IGNAL97/TEAPAC [Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 4 -

..ETROAREA	NONCBD
SIMULATION PERIOD	15
EVELOFSERVICE	C S
ODELOCATION	0 0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	.0	.0	.0	.0
EDLEVELS	3	3	0	0
ARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
USVOLUMES	0	0	0	0
IGHTTURNONREDS	0	25	0	0
UPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
OLUMES	284	415	201	230	394	101	106	115	64	13	166	105
IDTHS	.0	11.0	11.0	11.0	11.0	11.0	.0	11.0	11.0	.0	11.0	11.0
LANES	0	1	1	1	1	1	0	1	1	0	1	1
TILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
RUCKPERCENTS	.0	1.0	.0	.0	1.0	.0	.0	1.0	.0	.0	1.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
CTUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
EQCLEARANCES	5.0	5.0	5.0	3.0	3.0	3.0	5.0	5.0	5.0	3.0	3.0	3.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TARTUPLOST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
STOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
ATURATIONFLOWS	0	1713	1120	1559	1818	1040	0	1696	363	0	1800	489

Phasing Parameters

EQUENCES	11	11			LEADLAGS	NONE	NONE
PERMISSIVES	NO	NO	NO	NO	OFFSET	.00	1
VERLAPS	YES	YES	YES	YES	PEDTIME	.0	0
YCLES	70	90	10				
REENTIMES	38.26	23.74					
YELLOWTIMES	5.00	3.00					
CRITICALS	2	12					

he Mitchell Rezone
 . 272nd Street/16th Avenue S.
 2007 P.M. Peak Hour without Project

04/28/05
 14:39:22

File MR-H4P

IGNAL97/TEAPAC[Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 4 -
 Degree of Saturation (v/c) .57 Vehicle Delay 17.7 Level of Service B

q 11 **/**	Phase 1	Phase 2
/ \	* * + * * + <* * +> v	^ ++++ <++++ ++++ ^ **** v
orth	<+ + +> + + + + + +	++++> ++++ v
	G/C= .547 G= 38.3" Y+R= 5.0" OFF= .0%	G/C= .339 G= 23.7" Y+R= 3.0" OFF=61.8%

C= 70 sec G= 62.0 sec = 88.6% Y= 8.0 sec = 11.4% Ped= .0 sec = .0%

Lane Group	Width/ Lanes	g/C Reqd	Used	Service Rate @C (vph)	Adj @E	Volume	v/c	HCM Delay	L S	90% Max Queue
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N Approach

16.4 B

TH+RT	11/1	.475	.547	898	937	760	.811	18.4	*B	336 ft
LT	11/1	.257	.547	568	612	218	.356	9.3	A	96 ft

S Approach

8.9 A

TH+RT	11/1	.193	.547	888	927	240	.259	8.5	A	106 ft
LT	11/1	.296	.547	162	199	70	.352	10.0	A	31 ft

E Approach

21.1 C+

RT	11/1	.196	.339	455	529	223	.422	18.4	B	143 ft
TH	11/1	.282	.339	540	617	428	.694	23.4	C+	277 ft
LT	11/1	.166	.339	289	353	110	.312	17.6	B	71 ft

W Approach

22.5 C+

TH+RT	11/1	.156	.339	533	610	194	.318	17.4	B	125 ft
LT	11/1	.326	.339	121	160	114	.687	31.2	*C	73 ft

The Mitchell Rezone
 . 272nd Street/16th Avenue S.
 007 P.M. Peak Hour with Project

06/20/06
 14:45:05

File MR-P4P

IGNAL97/TEAPAC[Ver 1.02.12] - Summary of Parameter Values

Intersection Parameters for Int # 4 -

RETROAREA		NONCBD
SIMULATION PERIOD		15
EVELOFSERVICE	C	S
ODELOCATION	0	0

Approach Parameters

APPLABELS	N	E	S	W
GRADES	.0	.0	.0	.0
EDLEVELS	3	3	0	0
ARKINGSIDES	NONE	NONE	NONE	NONE
PARKVOLUMES	0	0	0	0
USVOLUMES	0	0	0	0
IGHTTURNONREDS	0	25	0	0
JPSTREAMVC	.00	.00	.00	.00

Movement Parameters

MOVLABELS	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT
OLUMES	286	417	201	247	394	101	106	115	64	13	166	105
IDTHS	.0	11.0	11.0	11.0	11.0	11.0	.0	11.0	11.0	.0	11.0	11.0
LANES	0	1	1	1	1	1	0	1	1	0	1	1
TILIZATIONS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
RUCKPERCENTS	.0	1.0	.0	.0	1.0	.0	.0	1.0	.0	.0	1.0	.0
PEAKHOURFACTORS	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
ARRIVALTYPES	3	3	3	3	3	3	3	3	3	3	3	3
CTUATIONS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
EQCLEARANCES	5.0	5.0	5.0	3.0	3.0	3.0	5.0	5.0	5.0	3.0	3.0	3.0
MINIMUMS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TARTUPLOST	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NDGAIN	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
IDEALSATFLOWS	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ELAYFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
STOPFACTORS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PROUPTYPES	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM	NORM
ATURATIONFLOWS	0	1713	1120	1559	1818	1040	0	1696	358	0	1800	489

Phasing Parameters

EQUENCES	11	11					
PERMISSIVES	NO	NO	NO	NO	LEADLAGS	NONE	NONE
VERLAPS	YES	YES	YES	YES	OFFSET	.00	1
YCLES	70	90	10		PEDTIME	.0	0
GREENTIMES	38.26	23.74					
YELLOWTIMES	5.00	3.00					
RITICALS	2	12					

The Mitchell Rezone
 . 272nd Street/16th Avenue S.
 2007 P.M. Peak Hour with Project

06/20/06
 14:44:47

File MR-P4P

SIGNAL97/TEAPAC[Ver 1.02.12] - Capacity Analysis Summary

Intersection Averages for Int # 4 -
 Degree of Saturation (v/c) .58 Vehicle Delay 17.8 Level of Service B

q 11	Phase 1	Phase 2
*/**		
/ \	* * +	^
	* * +	++++
	<* * +>	<++++>
	v	++++
orth	^	v
	<+ + +>	++++>
	+ + +	++++
	+ + +	v
	G/C= .547	G/C= .339
	G= 38.3"	G= 23.7"
	Y+R= 5.0"	Y+R= 3.0"
	OFF= .0%	OFF=61.8%

C= 70 sec G= 62.0 sec = 88.6% Y= 8.0 sec = 11.4% Ped= .0 sec = .0%

Lane Group	Width/Lanes	g/C Req'd	g/C Used	Service Rate @C (vph)	Adj @E Volume	v/c	HCM Delay	L S	90% Max Queue
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N Approach

16.6 B

TH+RT	11/1	.477	.547	897	936	764	.816	18.7	*B	338 ft
LT	11/1	.257	.547	568	612	218	.356	9.3	A	96 ft

S Approach

8.9 A

TH+RT	11/1	.193	.547	888	927	240	.259	8.5	A	106 ft
LT	11/1	.297	.547	159	196	70	.357	10.1	B+	31 ft

E Approach

21.1 C+

RT	11/1	.208	.339	455	529	241	.456	18.7	B	155 ft
TH	11/1	.282	.339	540	617	428	.694	23.4	C+	277 ft
LT	11/1	.166	.339	289	353	110	.312	17.6	B	71 ft

W Approach

22.5 C+

TH+RT	11/1	.156	.339	533	610	194	.318	17.4	B	125 ft
LT	11/1	.326	.339	121	160	114	.687	31.2	*C	73 ft

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	C. V. Brown			Intersection	16th Ave. S./S. 261st Place			
Agency/Co.	Mitchell Rezone			Jurisdiction	Des Moines			
Date Performed	5/4/05			Analysis Year	2005			
Analysis Time Period	P.M. Peak Hour			Project ID	Mitchell Rezone MR-C5P			
East/West Street: S. 261st Place				North/South Street: 16th Avenue S.				
Intersection Orientation: North-South				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	317	2	12	916	0		
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly Flow Rate, HFR	0	344	2	13	995	0		
Percent Heavy Vehicles	0	—	—	0	—	—		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	2	0	5	0	0	0		
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly Flow Rate, HFR	2	0	5	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	-2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		13		7				
C (m) (vph)		1224		360				
v/c		0.01		0.02				
95% queue length		0.03		0.06				
Control Delay		8.0		15.2				
LOS		A		C				
Approach Delay	—	—	15.2					
Approach LOS	—	—	C					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	C. V. Brown			Intersection	16th Ave. S./S. 261st Place			
Agency/Co.	Mitchell Rezone			Jurisdiction	Des Moines			
Date Performed	5/4/05			Analysis Year	2007 without Project			
Analysis Time Period	P.M. Peak Hour			Project ID	Mitchell Rezone MR-H5P			
East/West Street: S. 261st Place				North/South Street: 16th Avenue S.				
Intersection Orientation: North-South				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	340	2	12	981	0		
Peak-Hour Factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97		
Hourly Flow Rate, HFR	0	350	2	12	1011	0		
Percent Heavy Vehicles	0	—	—	0	—	—		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	1	1	0		
Configuration			TR	L	T			
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	2	0	5	0	0	0		
Peak-Hour Factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97		
Hourly Flow Rate, HFR	2	0	5	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	-2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LTR				
v (vph)		12		7				
C (m) (vph)		1218		353				
v/c		0.01		0.02				
95% queue length		0.03		0.06				
Control Delay		8.0		15.4				
LOS		A		C				
Approach Delay	—	—	15.4					
Approach LOS	—	—	C					

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information			
Analyst	C. V. Brown			Intersection	16th Ave. S./S. 261st Pl.		
Agency/Co.	Mitchell Rezone			Jurisdiction	Des Moines		
Date Performed	6/20/06			Analysis Year	2007 with the Project		
Analysis Time Period	P.M. Peak Hour			Project ID	Mitchell Rezone File MR-A5P		
East/West Street: S. 261st Place				North/South Street: 16th Avenue S.			
Intersection Orientation: North-South				Study Period (hrs): 1.00			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume	0	340	2	12	981	0	
Peak-Hour Factor, PHF	0.90	0.93	0.90	0.90	0.93	0.90	
Hourly Flow Rate, HFR	0	365	2	13	1054	0	
Percent Heavy Vehicles	0	—	—	1	—	—	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Westbound			Eastbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume	2	0	6	0	0	0	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR	2	0	6	0	0	0	
Percent Heavy Vehicles	1	1	1	0	0	0	
Percent Grade (%)	-2			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (vph)		13		8			
C (m) (vph)		1197		353			
v/c		0.01		0.02			
95% queue length		0.03		0.07			
Control Delay		8.0		15.4			
LOS		A		C			
Approach Delay	—	—	15.4				
Approach LOS	—	—	C				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	C. V. Brown			Intersection	16th Ave. S./S. 262nd Place			
Agency/Co.	Mitchell Rezone			Jurisdiction	Des Moines			
Date Performed	5/4/05			Analysis Year	2005			
Analysis Time Period	P.M. Preack Hour			Project ID	Mitchell Rezone MR-C6P			
East/West Street: S. 262nd Street				North/South Street: 16th Avenue S.				
Intersection Orientation: North-South				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	305	13	19	899	0		
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly Flow Rate, HFR	0	331	14	20	977	0		
Percent Heavy Vehicles	0	—	—	0	—	—		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	5	0	14	0	0	0		
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly Flow Rate, HFR	5	0	15	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	-2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		20		20				
C (m) (vph)		1225		387				
v/c		0.02		0.05				
95% queue length		0.05		0.16				
Control Delay		8.0		14.8				
LOS		A		B				
Approach Delay	—	—	14.8					
Approach LOS	—	—	B					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	C. V. Brown			Intersection	16th Ave. S./S. 262nd Place			
Agency/Co.	Mitchell Rezone			Jurisdiction	Des Moines			
Date Performed	5/4/05			Analysis Year	2007 without Project			
Analysis Time Period	P.M. Peak Hour			Project ID	Mitchell Rezone MR-H6P			
East/West Street: S. 262nd Place				North/South Street: 16th Avenue S.				
Intersection Orientation: North-South				Study Period (hrs): 1.00				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	327	13	20	963	0		
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly Flow Rate, HFR	0	355	14	21	1046	0		
Percent Heavy Vehicles	0	—	—	0	—	—		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	1	1	0		
Configuration			TR	L	T			
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	5	0	14	0	0	0		
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly Flow Rate, HFR	5	0	15	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	-2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LTR				
v (vph)		21		20				
C (m) (vph)		1201		352				
v/c		0.02		0.06				
95% queue length		0.05		0.18				
Control Delay		8.1		15.8				
LOS		A		C				
Approach Delay	—	—	15.8					
Approach LOS	—	—	C					

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information			
Analyst	C. V. Brown			Intersection	16th Ave. S./S. 262nd Place		
Agency/Co.	Mitchell Rezone			Jurisdiction	Des Moines		
Date Performed	6/20/06			Analysis Year	2007 w/Project		
Analysis Time Period	P. M. Peak Hour			Project ID	Mitchell Rezone MR-P6P		
East/West Street: S. 262nd Place				North/South Street: 16th Avenue S.			
Intersection Orientation: North-South				Study Period (hrs): 1.00			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume	0	327	30	20	963	0	
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly Flow Rate, HFR	0	355	32	21	1046	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Westbound			Eastbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume	5	0	14	0	0	0	
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly Flow Rate, HFR	5	0	15	0	0	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	-2			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (vph)		21		20			
C (m) (vph)		1183		348			
v/c		0.02		0.06			
95% queue length		0.05		0.18			
Control Delay		8.1		16.0			
LOS		A		C			
Approach Delay	--	--	16.0				
Approach LOS	--	--	C				

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	C. V. Brown
Agency/Co.	Mitchell Rezone
Date Performed	6/20/06
Analysis Time Period	P.M. Peak Hour

Site Information

Intersection	SR 99/S. 263rd Place
Jurisdiction	Des Moines
Analysis Year	2007 w/Project
Project ID	Mitchell Rezone MR-P7P

East/West Street: New South 263rd Place

North/South Street: SR 99 Pacific Highway S.

Intersection Orientation: North-South

Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	878	0	0	1656	49
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR	0	954	0	0	1799	53
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T			T	TR
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0	0	0	37
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR	0	0	0	0	0	40
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			2		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	1	0	0	1
Configuration			R			R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					R			R
v (vph)					0			40
C (m) (vph)					540			274
v/c					0.00			0.15
95% queue length					0.00			0.51
Control Delay					11.7			20.4
LOS					B			C
Approach Delay	--	--				20.4		
Approach LOS	--	--				C		

**PRELIMINARY
TECHNICAL INFORMATION REPORT
FOR
LANDMARQUE**

CLIENT:

Landmark Homes, Inc.
P.O. Box 26116
Federal Way, WA 98093-3116
Phone: (253) 927-6116

PREPARED BY:

Daley-Morrow-Poblete, Inc.
726 Auburn Way North
Auburn, WA 98002
Phone: (253) 333-2200

PROJECT No. 06-110

DATE: March. 25, 2006
REVISED: June 30, 2006
REVISED: OCT. 31, 2006
REVISED: FEB. 15, 2007



EXPIRES 9 JAN 2008
STAMP NOT VALID UNLESS SIGNED & DATED

Response to Storm Water Management Issues:

1. The wetland analysis is included in Section VI of this report, pages 13A through 19.
2. See Section VI.

Response to Wetlands:

1. See Section VI.

TABLE OF CONTENTS

DESCRIPTION	PAGE
<u>SECTION I – PROJECT OVERVIEW</u>	
Project Overview	1
TIR Worksheet	2 - 6
Vicinity Map	7
Soils Map	8
<u>SECTION II – CONDITIONS AND REQUIREMENTS SUMMARY</u>	
Plat Conditions	To be added
<u>SECTION III – OFF-SITE ANALYSIS</u>	
Downstream Analysis	1 - 33
<u>SECTION IV – FLOW CONTROL AND WATER QUALITY FACILITY ANALYSIS AND DESIGN</u>	
Detention Facility Design	1 - 9
Wetvault Design	10
Stormfilter Design	11
<u>SECTION V – CONVEYANCE SYSTEM ANALYSIS AND DESIGN</u>	
Conveyance System Design	To be added
<u>SECTION VI – SPECIAL REPORTS AND STUDIES</u>	
Wetland Analysis Report and Concept Mitigation	1 - 9
Geotechnical Report	10 - 13
Wetland Analysis	13A - 19
<u>SECTION VII – OTHER PERMITS</u>	
	N/A
<u>SECTION VIII – C.S.W.P.P. ANALYSIS AND DESIGN</u>	
E.S.C. Plan Analysis and Design (Part A)	To be added
SWPPS Plan Design (Part B)	To be added
<u>SECTION IX – BOND QUANTITIES AND FACILITY SUMMARIES</u>	
	To be completed
<u>SECTION X – OPERATIONS AND MAINTENANCE MANUAL</u>	
	N/A

SECTION I
PROJECT OVERVIEW

PROJECT OVERVIEW

The Plat of Landmarque is a 10.05-acre site with a frontage on Pacific Highway South. The project consists of three existing parcels that are located in a portion of the Southwest quarter, of Section 28, Township 22 North, Range 4 East, Willamette Meridian, in the City of Des Moines, King County, Washington. The existing parcel numbers are 2822049233, 2822049067 and 2833049209. The proposed project will consist of the creation of 68 residential units, with each unit being on a separate lot. A separate commercial lot is also being created. All necessary utilities and stormwater facilities will be constructed to serve the development. The City of Kent has improved Pacific Highway South, therefore, no improvements along Pacific Highway South are being proposed at this time.

This project site is situated within the McSorley Creek Drainage-Basin, tributary to Lower Puget Sound. Presently, the site is undeveloped land. Portions of the site are forested with deciduous trees and shrub underbrush. The remainder of the site is low brush and grasses. The majority of the site is underlain by Alderwood gravelly sandy loam (AgC). An area near the northeast corner of the site is underlain by Everett (EvC) soils, however, preliminary geotechnical investigation indicates that site soils are not conducive for infiltration facilities.

An appropriately sized conveyance system will be designed and constructed to collect the developed on-site runoff from the proposed project. By-pass flows from the tributary areas will be collected and routed around or through the project. A water quantity and water quality facility will be designed to mitigate for the effects of the hydraulic changes resulting from the project and replicate to pre-developed conditions. Stormwater facilities will be constructed pursuant to the City of Des Moines Standards.

TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

Part 1 PROJECT OWNER AND
PROJECT ENGINEER

Project Owner LANDMARK HOMES, INC.
 Phone (253) 927-6116
 Address P.O. Box 26116
FEDERAL WAY, WA 98093-3116
 Project Engineer MEL L. DALEY, P.E.
 Company DALEY-MORROW-POBLETE, INC.
 Phone (253) 333-2200

Part 2 PROJECT LOCATION AND
DESCRIPTION

Project Name LANDMARK QUE
 DDES Permit # N/A
 Location Township 22N
 Range 4E
 Section 28
 Site Address 26329 PACIFIC HWYS

Part 3 TYPE OF PERMIT APPLICATION

- ☒ Landuse Services
Subdivision / Short Subd. / UPD
☐ Building Services
 M/F / Commerical / SFR
☐ Clearing and Grading
☐ Right-of-Way Use
☐ Other _____

Part 4 OTHER REVIEWS AND PERMITS

- ☐ DFW HPA ☐ Shoreline
 Management
☐ COE 404 ☐ Structural
 Rockery/Vault/_____
☐ DOE Dam Safety ☐ ESA Section 7
☐ FEMA Floodplain
☐ COE Wetlands
☐ Other _____

Part 5 PLAN AND REPORT INFORMATION

Technical Information Report

Type of Drainage Review Full / Targeted /
 (circle): Large Site
 Date (include revision
 dates): _____
 Date of Final: _____

Site Improvement Plan (Engr. Plans)

Type (circle one): Full / Modified /
 Small Site
 Date (include revision
 dates): _____
 Date of Final: _____

Part 6 ADJUSTMENT APPROVALS

Type (circle one): Standard / Complex / Preapplication / Experimental / Blanket

Description: (include conditions in TIR Section 2)

N/A

Date of Approval: _____

TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

Part 7 MONITORING REQUIREMENTS

Monitoring Required: Yes No

Describe: _____

Start Date: _____

Completion Date: _____

Part 8 SITE COMMUNITY AND DRAINAGE BASIN

Community Plan: DES MOINES

Special District Overlays: _____

Drainage Basin: PUGET SOUNDStormwater Requirements: CITY OF DES MOINES

Part 9 ONSITE AND ADJACENT SENSITIVE AREAS

☐ River/Stream _____☐ Steep Slope _____☐ Lake _____☐ Erosion Hazard _____☒ Wetlands _____☐ Landslide Hazard _____☐ Closed Depression _____☐ Coal Mine Hazard _____☐ Floodplain _____☐ Seismic Hazard _____☐ Other _____☐ Habitat Protection _____☐ _____

Part 10 SOILS

Soil Type

Slopes

Erosion Potential

AgC6 to 15%MODERATEEvB0 to 5%SLIGHT☐ High Groundwater Table (within 5 feet)☐ Sole Source Aquifer☐ Other _____☐ Seeps/Springs☐ Additional Sheets Attached

TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

Part 11 DRAINAGE DESIGN LIMITATIONS	
REFERENCE	LIMITATION / SITE CONSTRAINT
☒ Core 2 – Offsite Analysis	
☐ Sensitive/Critical Areas	
☐ SEPA	
☐ Other	
☐	
☐ Additional Sheets Attached	

Part 12 TIR SUMMARY SHEET (provide one TIR Summary Sheet per Threshold Discharge Area)	
Threshold Discharge Area: (name or description)	
Core Requirements (all 8 apply)	
Discharge at Natural Location	Number of Natural Discharge Locations:
Offsite Analysis	Level: <u>1</u> / 2 / 3 dated: <u>03/20/06</u>
Flow Control (incl. facility summary sheet)	Level: 1 / 2 / 3 or Exemption Number _____ Small Site BMPs _____
Conveyance System	Spill containment located at: _____
Erosion and Sediment Control	ESC Site Supervisor: Contact Phone: After Hours Phone:
Maintenance and Operation	Responsibility: Private / Public If Private, Maintenance Log Required: Yes / No
Financial Guarantees and Liability	Provided: Yes / No
Water Quality (include facility summary sheet)	Type: Basic / Sens. Lake / Enhanced Basicm / Bog or Exemption No. _____ Landscape Management Plan: Yes / No
Special Requirements (as applicable)	
Area Specific Drainage Requirements	Type: CDA / SDO / MDP / BP / LMP / Shared Fac. / None Name: _____
Floodplain/Floodway Delineation	Type: Major / Minor / Exemption / None 100-year Base Flood Elevation (or range): _____ Datum: _____
Flood Protection Facilities	Describe: _____
Source Control (comm./industrial landuse)	Describe landuse: _____ Describe any structural controls: _____

TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

Oil Control	High-use Site: Yes / No Treatment BMP: _____ Maintenance Agreement: Yes / No with whom? _____
Other Drainage Structures	
Describe:	

Part 13 EROSION AND SEDIMENT CONTROL REQUIREMENTS	
MINIMUM ESC REQUIREMENTS DURING CONSTRUCTION ☒ Clearing Limits ☒ Cover Measures ☒ Perimeter Protection ☒ Traffic Area Stabilization ☒ Sediment Retention ☒ Surface Water Control ☒ Dust Control ☒ Construction Sequence	MINIMUM ESC REQUIREMENTS AFTER CONSTRUCTION ☒ Stabilize Exposed Surfaces ☒ Remove and Restore Temporary ESC Facilities ☒ Clean and Remove All Silt and Debris Ensure Operation of Permanent Facilities ☒ Flag Limits of SAO and open space preservation areas ☐ Other _____

Part 14 STORMWATER FACILITY DESCRIPTIONS (Note: Include Facility Summary and Sketch)			
Flow Control	Type/Description	Water Quality	Type/Description
☒ Detention ☐ Infiltration ☐ Regional Facility ☐ Shared Facility ☐ Small Site BMPs ☐ Other	<u>VAULT</u> _____ _____ _____ _____ _____	☐ Biofiltration ☒ Wetpool ☐ Media Filtration ☐ Oil Control ☐ Spill Control ☐ Small Site BMPs ☐ Other	_____ <u>WET VAULT</u> _____ _____ _____ _____ _____



King County

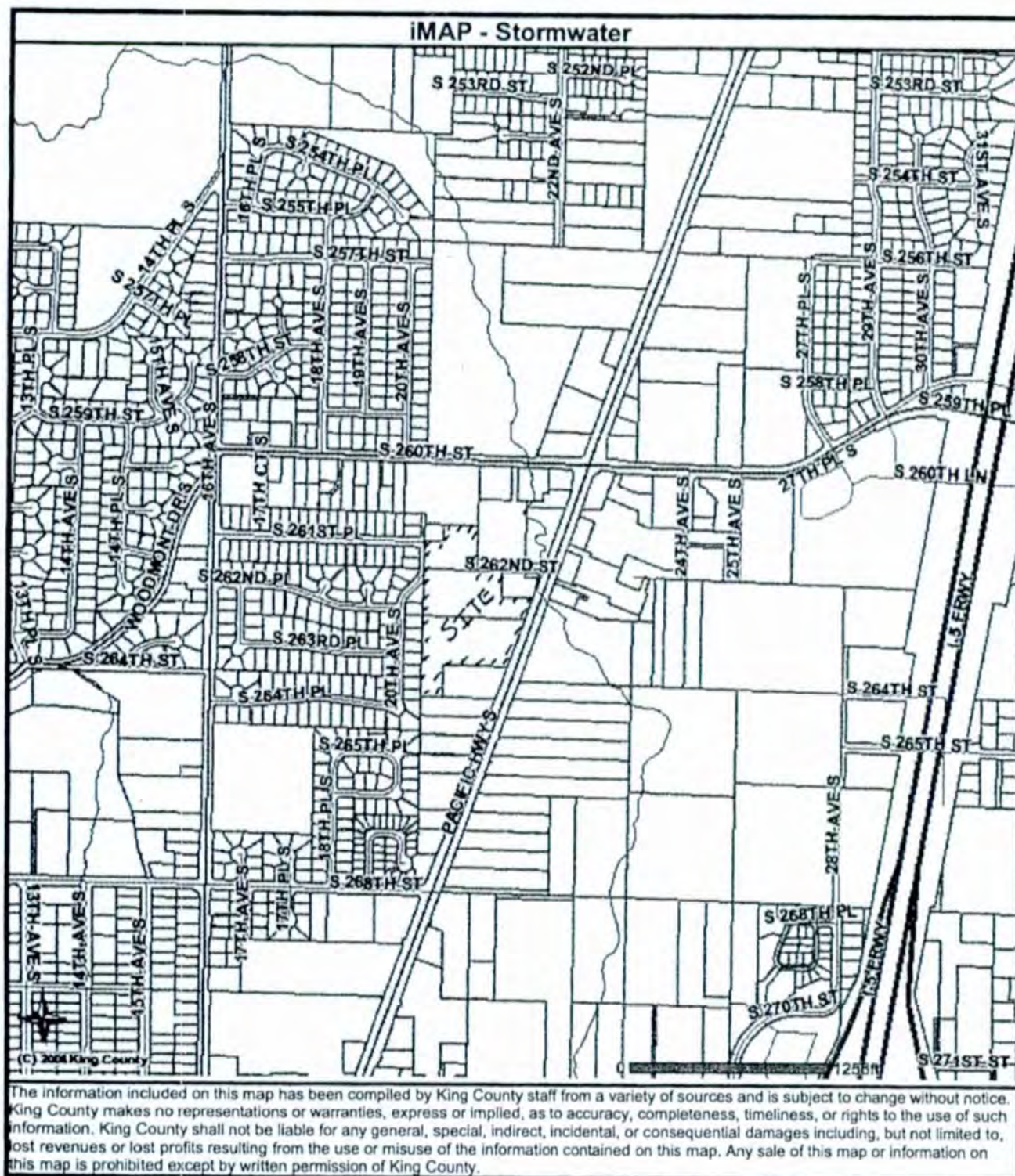
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Vicinity Map

⑦

20'

AgB AgC AgB (Joins sheet 10)

R 4 E

17'30"

1 640 000 FEET (NORTH); AgC



King County Soils Survey Map

SECTION II

**CONDITIONS AND
REQUIREMENTS SUMMARY**

TO BE ADDED

SECTION III

OFF-SITE ANALYSIS

LEVEL I OFF-SITE ANALYSIS
FOR
PLAT OF
LANDMARQUE

CLIENT:

Landmark Homes, Inc.
P.O. Box 26116
Federal Way, WA 98093-3116
Phone: (253) 927-6116

PREPARED BY:

Daley-Morrow-Poblete, Inc.
726 Auburn Way N
Auburn, WA 98002
Phone: (253) 333-2200

PROJECT: 06-110
DATE: March 20, 2006

TABLE OF CONTENTS

TASK 1: Study Area Definition and Maps

General Information
On-Site Drainage Analysis
Upstream Drainage Analysis
Downstream Drainage System Description
Future Site Conditions

TASK 2: Resource Review

1. Drainage Studies
2. County Basin Reconnaissance Summary Reports
3. Flood Plain/Floodway (FEMA) Maps
4. Offsite Analysis Reports
5. City of Des Moines Critical Areas Map Series
6. SWM Division Drainage Investigation Information
7. King County Soils Survey Maps

TASK 3: Field Inspection

1. Investigation of Reported or Observed Problems During Resource Review
2. Location of Existing/Potential Constrictions or Lack of Capacity in the Existing Drainage System
3. Identify Existing/Potential Flooding Problems
4. Identify Existing/Potential Overtopping, Scouring, Bank Sloughing, or Sedimentation
5. Identification of Significant Destruction of Aquatic Habitat or Organisms
6. Collect Qualitative Data on Land Use, Impervious Surfaces, Topography and Soil Types
7. Collect Information on Pipe Sizes, Channel Characteristics and Drainage Structures
8. Verify Tributary Basins Delineated in Task 1
9. Contact Neighboring Property Owners in the Area
10. Note the Date and Weather Conditions at the Time of the Site Visit

TASK 4: Drainage System Description and Problem Description

1. Drainage System Descriptions
2. Problems

TASK 5: Mitigation of Existing or Potential Problems

APPENDIX

TASK 1: Study Area Definition and Maps

General Information

The Plat of Landmarque is a 10.05-acre site with a frontage on Pacific Highway South. The project consists of three existing parcels that are located in a portion of the Southwest quarter, of Section 28, Township 22 North, Range 4 East, Willamette Meridian, in the City of Des Moines, King County, Washington. The existing parcel numbers are 2822049233, 2822049067 and 2833049209. The proposed project will consist of the creation of 68 units, with each unit being on a separate lot. A separate commercial lot is also being created. All necessary utilities and stormwater facilities will be constructed to serve the development. The City of Kent has improved Pacific Highway South, therefore, no improvements along Pacific Highway South are being proposed at this time. This report is being prepared pursuant to the 2005 King County Surface Water Design Manual (SWDM). This report is prepared to conform specifically to Core Requirement (2), Off-Site Analysis.

On-Site Drainage Analysis

This project site is situated within the McSorley Creek Drainage-Basin, tributary to Lower Puget Sound. Presently, the site is undeveloped land. Portions of the site are forested with deciduous trees and shrub underbrush. The remainder of the site is low brush and grasses. The majority of the site is underlain by Alderwood gravelly sandy loam (AgC). An area near the northeast corner of the site is underlain by highly porous Everett (EvC) soils. In general, site runoff flows easterly with the majority of the site discharging into the Pacific Highway South drainage system which drains north then west into a new City of Kent regional detention pond. This pond in turn discharges into McSorley Creek. The smaller northerly portion of the site discharges easterly into McSorley Creek upstream of the regional detention pond. All on-site flows eventually inter McSorley Creek and combine within ¼ mile downstream from the project site.

See Exhibit C for a visual illustration of the existing on-site drainage conditions.

Upstream Drainage Analysis

This project is located within an urban area of mostly developed residential and commercial properties. Runoff from the adjacent neighborhood to the west discharge onto the site via sheet flow and two pipes discharging at two points, which drain 20th Ave South and the tributary residential neighborhood. The point discharges are conveyed through the site within existing small ditches (See Exhibit C), which come together and flow into an on-site wetland located near the eastern portion of the site. This wetland discharges off-site into the adjacent Pacific Highway South drainage system. Small flows were observed draining from these point discharges. The tributary area has been estimated to be 14 acres.

See Exhibit B for a visual illustration of this tributary area.

Downstream Drainage System Description

As discussed above, the site has two existing discharge points off-site. The majority of the site discharges into the adjacent Pacific Highway South drainage system. This system will be described below as the Easterly Discharge. The smaller northerly portion of the site will be described below as the Northeasterly Discharge. These discharges merge within $\frac{1}{4}$ mile downstream. Also, within $\frac{1}{4}$ mile downstream of each of these two discharge points, the site discharge area contributes less than 15% of the total basin drainage area; therefore, the three downstream drainage systems were reviewed to $\frac{1}{4}$ mile downstream for each. For this project, the downstream drainage system was well defined.

Easterly Discharge

The downstream drainage course begins in 20 feet of 12-inch Ductile Iron (D.I.) pipe discharging to the east into the new conveyance system for Pacific Highway South. The system continues to the north within 180 feet of 18-inch D.I. pipe. The system turns west then north in two sections of 24-inch concrete pipe for distances of 35 and 145 feet respectively. The system turns to the west within 140 feet of 48-inch concrete pipe, where it enters the regional detention pond. The pond is linear in shape toward the north for a distance of approximately 300 feet. The pond outlets through 20 feet of 36-inch concrete pipe then through a vertical control structure. The control structure outlets into 75 feet of 36-inch concrete pipe, then 20 feet of 36-inch concrete pipe. This pipe flows onto a rip rap pad for a distance of approximately 40 feet, where the flow enters McSorley Creek. This is the merge point with the Northeasterly Discharge from the site. The creek continues north for a distance of approximately 330 feet, where it enters approximately 150 feet of 60-inch corrugated metal pipe under South 260th Street. McSorley Creek continues north then west where it outlets into Puget Sound.

This point is beyond $\frac{1}{4}$ mile downstream of the project site and the analysis is therefore terminated.

Northeasterly Discharge

The downstream drainage system begins as sheet flow to the east for a distance of 170 feet. The sheet flow enters a catch basin and continues east within 75 feet of 6-inch corrugated polyethylene pipe. This pipe flows into McSorley Creek which is flowing to the north for a distance of 20 feet. The creek flows into 55 feet of 60-inch corrugated metal pipe, and then continues northerly for a distance of approximately 500 feet where it merges with the Easterly Discharge from the site.

See Exhibit B for a visual illustration of this drainage course, and Exhibit K for the Off-Site Analysis Drainage System Table.

Future Site Conditions

An appropriately sized conveyance system will be designed and constructed to collect the developed on-site runoff from the proposed project. By-pass flows from the tributary areas will be collected and routed around or through the project. As noted within this report, due to the soils underlying the project site near the proposed stormwater facility, the development is currently reviewing the possibility of installing a retention facility with overflow directed toward the downstream drainage course. If a retention facility is proven to not be feasible for this project, then a water quantity and water quality facility will be designed to mitigate for the effects of the hydraulic changes resulting from the project and replicate to pre-developed conditions. Stormwater facilities will be constructed pursuant to the City of Des Moines Standards.

TASK 2: Resource Review

The following is a description of each of the resources reviewed in preparation of this Downstream Analysis:

1. Drainage Studies

No additional nearby studies are available for this project.

2. King County Basin Reconnaissance Summary Reports

This project site is situated within the McSorley Creek Sub-Basin, tributary to the Lower Puget Sound. Refer to Exhibit D.

3. Flood Plain/Floodway (FEMA) Maps

The site is not within a 100-year floodplain. Refer to Exhibit E.

4. Offsite Analysis Reports

The Level I Off-Site Analysis for the Plat of Pacific Place was reviewed during the preparation of this report.

5. City of Des Moines Critical Areas Map Series

Copies of the City of Des Moines Critical Areas Map Series showing the location of the site are included in Section F. According to the maps, the site is not within a 100-year flood plain, Critical Aquifer Recharge, Frequently Flooded, Geologically Hazardous, Slope & Topography or Wetlands Areas. However, a wetlands report has been prepared for the site which indicates the presents of wetlands near the eastern property line. A copy of this report is included

6. SWM Division Drainage Investigation Information

A drainage complaint review from the King County Web site is included in Exhibit G. The information indicates two old complaints where recorded for properties adjacent to McSorley Creek. These complaints are identified as 1975-0109, and 1987-0768. However, due to the age of the complaints, they where not available from King County Drainage Services. However, the properties where investigated during the field reconnaissance for this report for indications of ongoing drainage concerns. No observations of ongoing drainage issues where noted.

7. King County Soils Survey Maps

The majority of the site is underlain by Alderwood gravelly sandy loam (AgC). An area near the northeast corner of the site is underlain by Everett (EvC) soils, however, preliminary geotechnical analysis revealed that the soils are not suitable for infiltration facilities. A copy of the relevant page from the King County Soils Survey Map is included in Exhibit H.

TASK 3: Field Inspection

This project site is situated within the McSorley Creek Drainage-Basin, tributary to Puget Sound. Presently, the site is undeveloped land. Portions of the site are forested with deciduous trees and shrub underbrush. The remainder of the site is low brush and grasses. Topographic contours are shown on the Upstream/Downstream Basin Map located within Exhibit B. At the time of the site visit, water was observed to be flowing within the downstream drainage systems.

1. Investigation of Reported or Observed Problems During Resource Review

The resource review did not reveal any capacity problems.

2. Location of Existing/Potential Constrictions or Lack of Capacity in the Existing Drainage System

At the time of the site visit, there did not appear to be any evidence of lack of capacity or constraints within the existing drainage system.

3. Identify Existing/Potential Flooding Problems

At the time of the site visit, there did not appear to be any evidence of flooding problems within the existing downstream drainage system.

4. Identify Existing/Potential Overtopping, Scouring, Bank Sloughing, or Sedimentation

There appeared to be no evidence of overtopping, scouring or bank scouring in the downstream system.

5. Identification of Significant Destruction of Aquatic Habitat or Organisms

At the time of the site visit, there were no signs of aquatic habitat or organism destruction.

6. Collect Qualitative Data on Land Use, Impervious Surfaces, Topography and Soil Types

Qualitative data has been collected from previous field visits. This information is included within this report.

7. Collect Information on Pipe Sizes, Channel Characteristics and Drainage Structures

See Exhibit B and K for this information.

8. Verify Tributary Basins Delineated in Task 1

At the time of the site visit, the tributary basins described in Task 1 were verified as being accurate.

9. Contact Neighboring Property Owners in the Area

No neighboring property owners were available or contacted as part of this report.

10. Note the Date and Weather Conditions at the Time of the Site Visit

The site and downstream system was visited on March 18, 2006. The weather was overcast, and followed a period of light rain.

TASK 4: Drainage System Description and Problem Description

1. Drainage System Descriptions:

As discussed above, the site has two existing discharge points off-site. The majority of the site discharges into the adjacent Pacific Highway South drainage system. This system will be described below as the Easterly Discharge. The smaller northerly portion of the site will be described below as the Northeasterly Discharge. These discharges merge within $\frac{1}{4}$ mile downstream.

Easterly Discharge

The downstream drainage course begins in 20 feet of 12-inch Ductile Iron (D.I.) pipe discharging to the east into the new conveyance system for Pacific Highway South. The system continues to the north within 180 feet of 18-inch D.I. pipe. The system turns west then north in two sections of 24-inch concrete pipe for distances of 35 and 145 feet respectively. The system turns to the west within 140 feet of 48-inch concrete pipe, where it enters the regional detention pond. The pond is linear in shape toward the north for a distance of approximately 300 feet. The pond outlets through 20 feet of 36-inch concrete pipe then through a vertical control structure. The control structure outlets into 75 feet of 36-inch concrete pipe, then 20 feet of 36-inch concrete pipe. This pipe flows onto a rip rap pad for a distance of approximately 40 feet, where the flow enters McSorley Creek. This is the merge point with the Northeasterly Discharge from the site. The creek continues north for a distance of approximately 330 feet, where it enters approximately 150 feet of 60-inch corrugated metal pipe under South 260th Street. McSorley Creek continues north then west where it outlets into Puget Sound.

Northeasterly Discharge

The downstream drainage system begins as sheet flow to the east for a distance of 170 feet. The sheet flow enters a catch basin and continues east within 75 feet of 6-inch corrugated polyethylene pipe. This pipe flows into McSorley Creek which is flowing to the north for a distance of 20 feet. The creek flows into 55 feet of 60-inch corrugated metal pipe, and then continues northerly for a distance of approximately 500 feet where it merges with the Easterly Discharge from the site.

See Exhibit B for a visual illustration of this drainage course, and Exhibit K for the Off-Site Analysis Drainage System Table.

2. Problems:

As discussed in this report, during the site visit, no recent or ongoing problems were observed within the downstream drainage course. An appropriately sized conveyance system will be designed and constructed to collect the developed on-site runoff from the proposed project. By-pass flows from the tributary areas will be collected and routed around or through the project. As noted within this report, due to the soils underlying the project site near the proposed stormwater facility, the development is currently reviewing the possibility of installing a retention facility with overflow directed toward the downstream drainage course. If a retention facility is proven to not be feasible for this project, then a water quantity and water quality facility will be designed to mitigate for the effects of the hydraulic changes resulting from the project and replicate to pre-developed conditions. With the installation of an appropriately designed storm water facility, the project should not pose significant negative impacts to the downstream drainage system.

TASK 5: Mitigation of Existing or Potential Problems

In order to provide enough water to support the enlarged wetland area, it is proposed to allow roof areas from lots 27 through 42 as well as the entire lot 43, to drain directly to the wetland area. The remaining site runoff will be directed to the proposed detention vault/wetvault. A Stormfilter vault with 7 cartridges will also be provided to complete the treatment train. Separate water quality facilities meeting the most current standards will have to be provided for lot 43 when it gets developed.

Drainage facilities for the proposed Plat of Landmarque will be designed to the City of Des Moines drainage standards. Given the size of this project, and nature of the downstream drainage course, we do not anticipate any negative impacts. The proposed development, if designed pursuant to existing design standards, should not pose significant negative impacts to the downstream drainage course.

APPENDIX

Exhibit A	Vicinity Map
Exhibit B	Upstream/Downstream Drainage Basin Map
Exhibit C	Existing On-site Topo
Exhibit D	Lower Puget Sound Basin Area
Exhibit E	Flood Plain/Floodway (FEMA) Map
Exhibit F	City of Des Moines Critical Area Map Series
Exhibit G	SWM Division Drainage Investigation information
Exhibit H	King County Soils Survey Map
Exhibit I	Site Plan of Landmarque
Exhibit J	Assessor's Map
Exhibit K	Off-Site Analysis Drainage System Table



King County

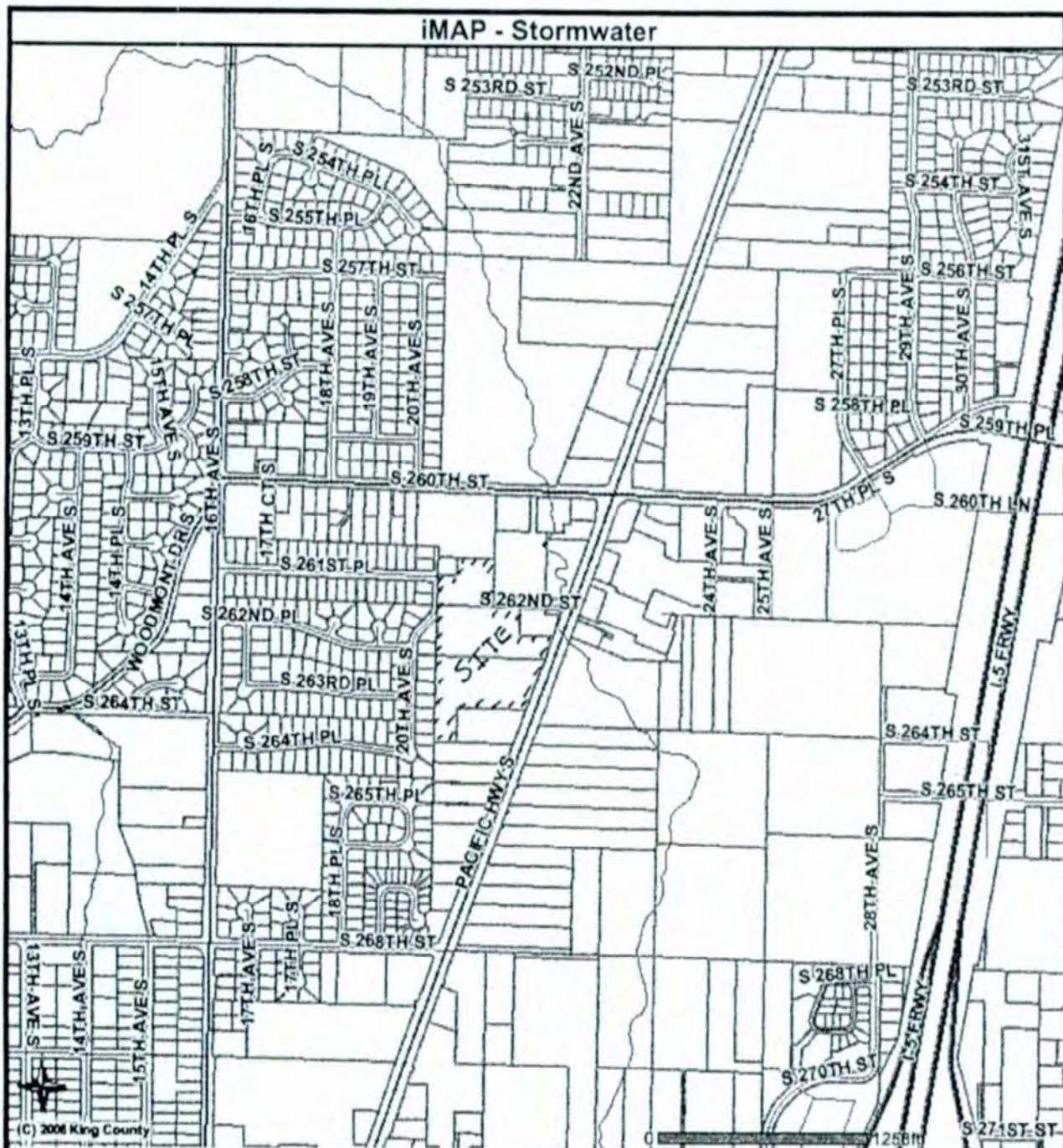
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Exhibit A

Vicinity Map

14



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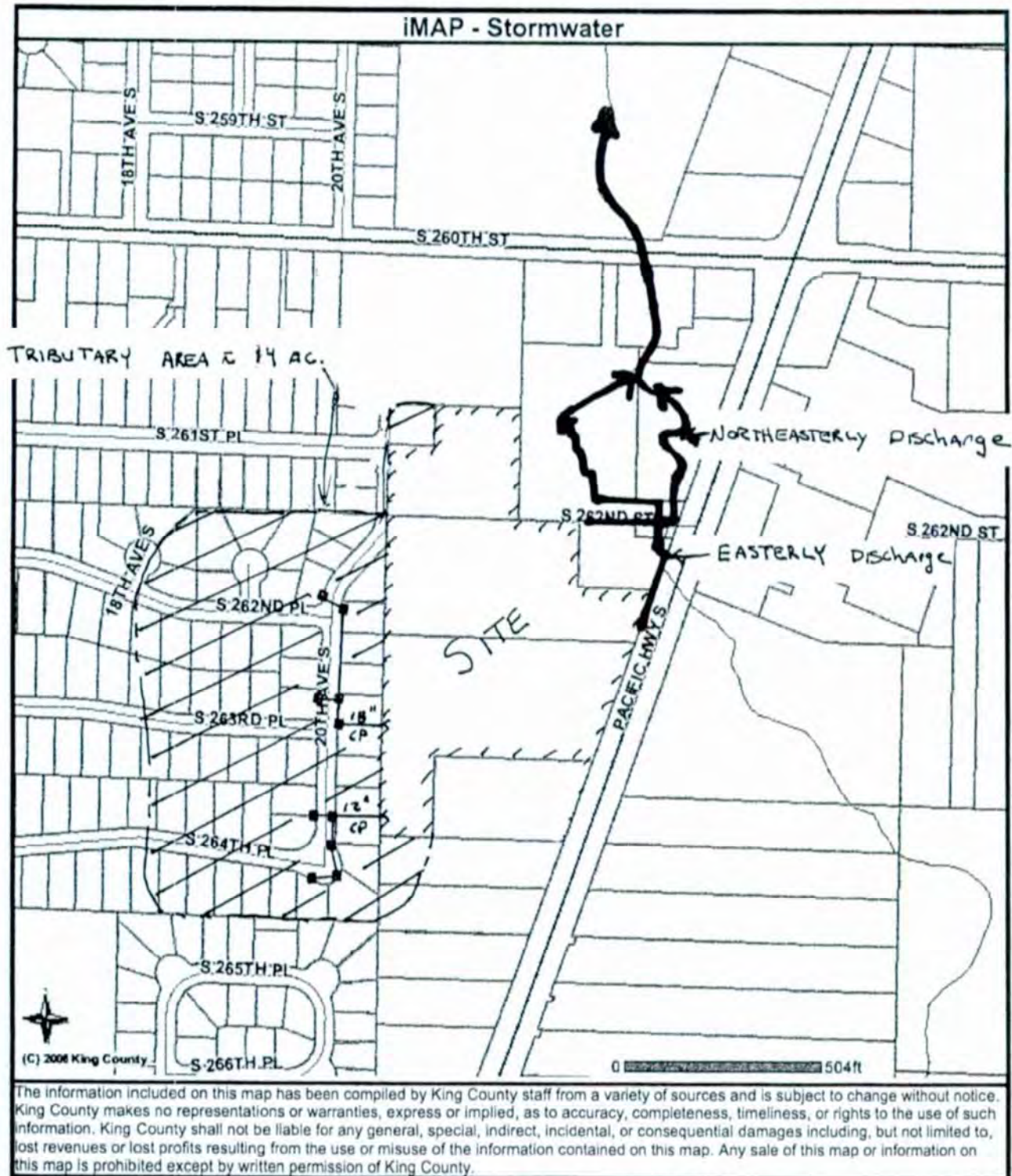


Exhibit B

Upstream/Downstream Drainage Basin Map

15



King County

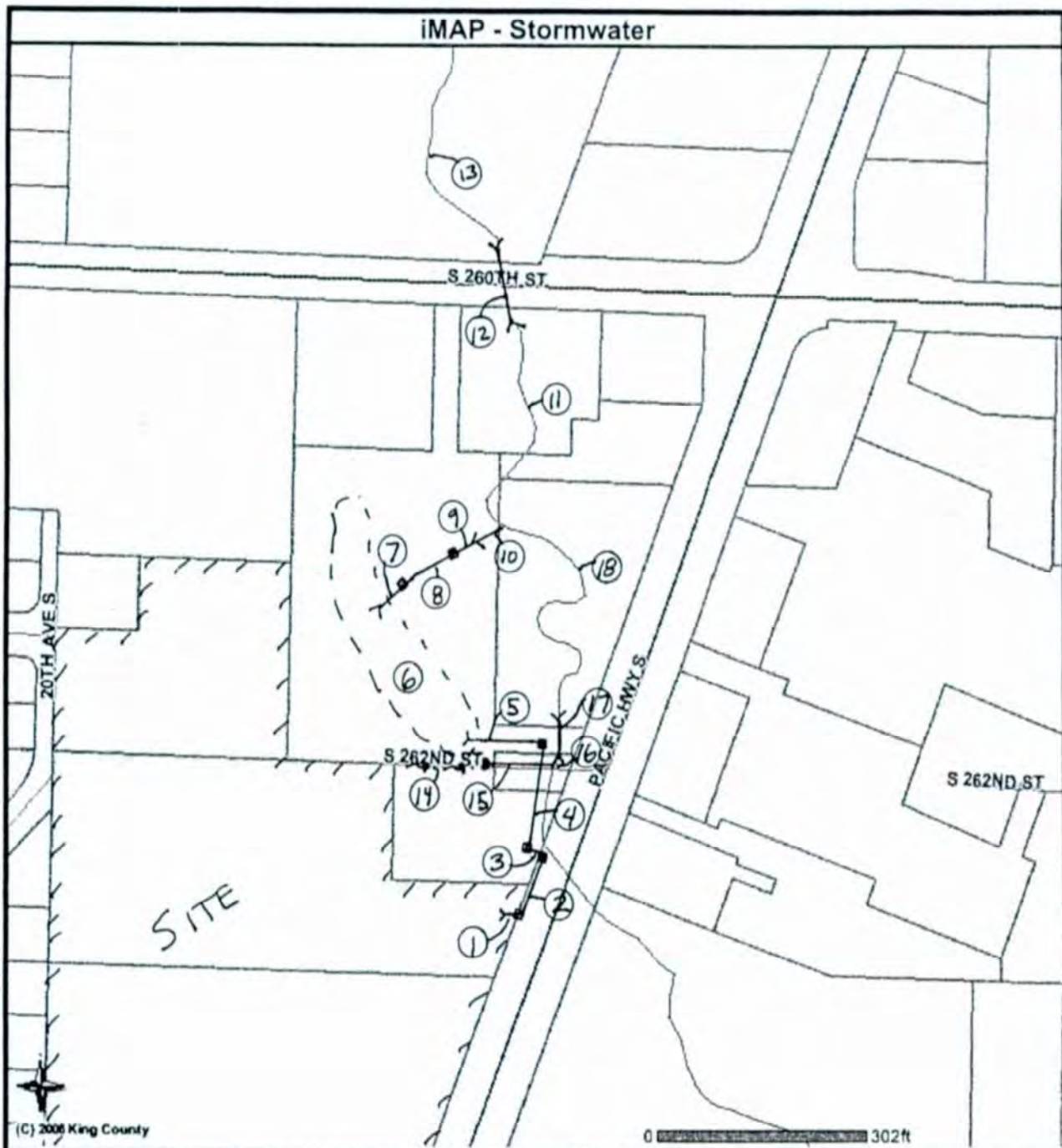
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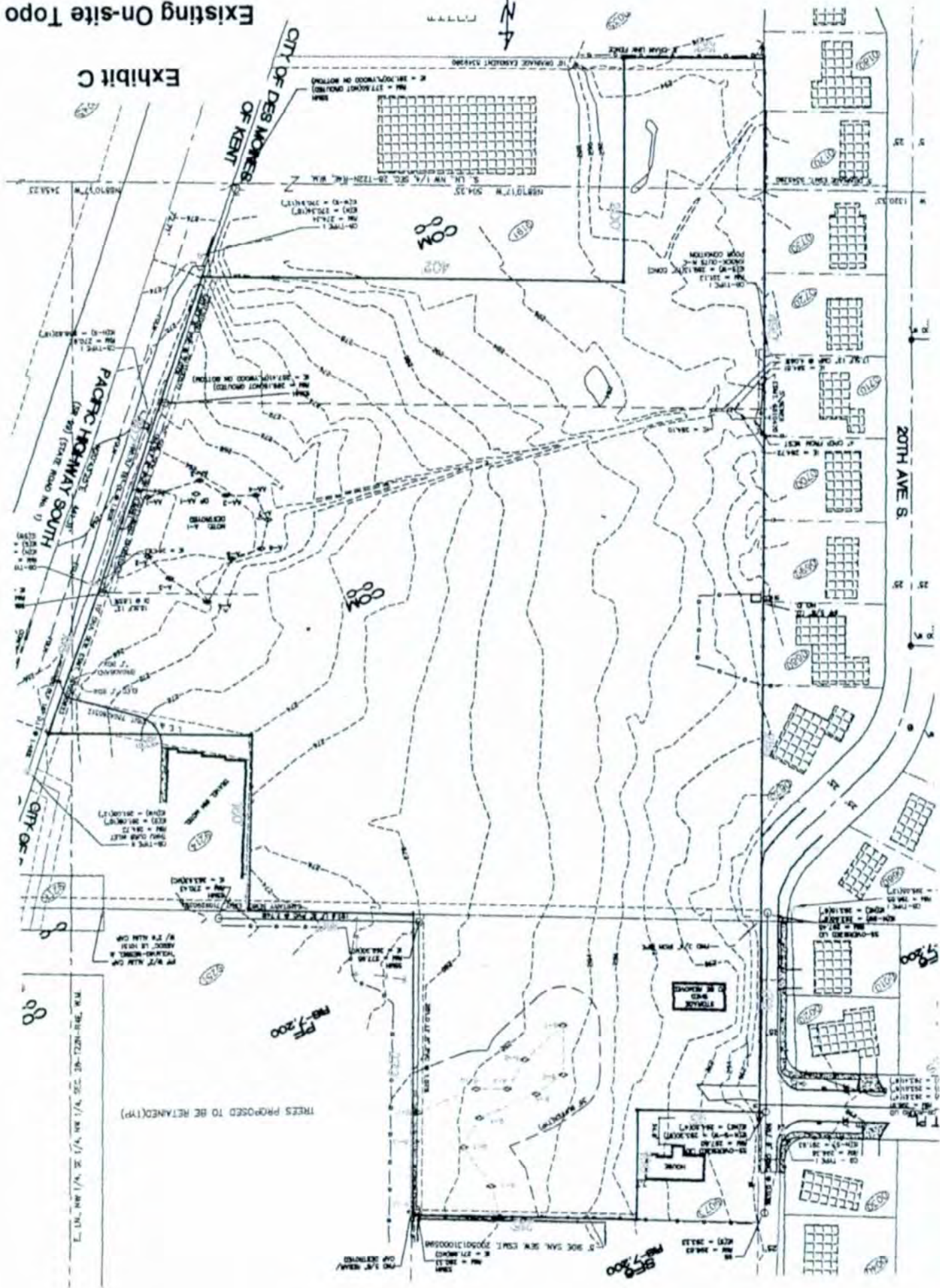
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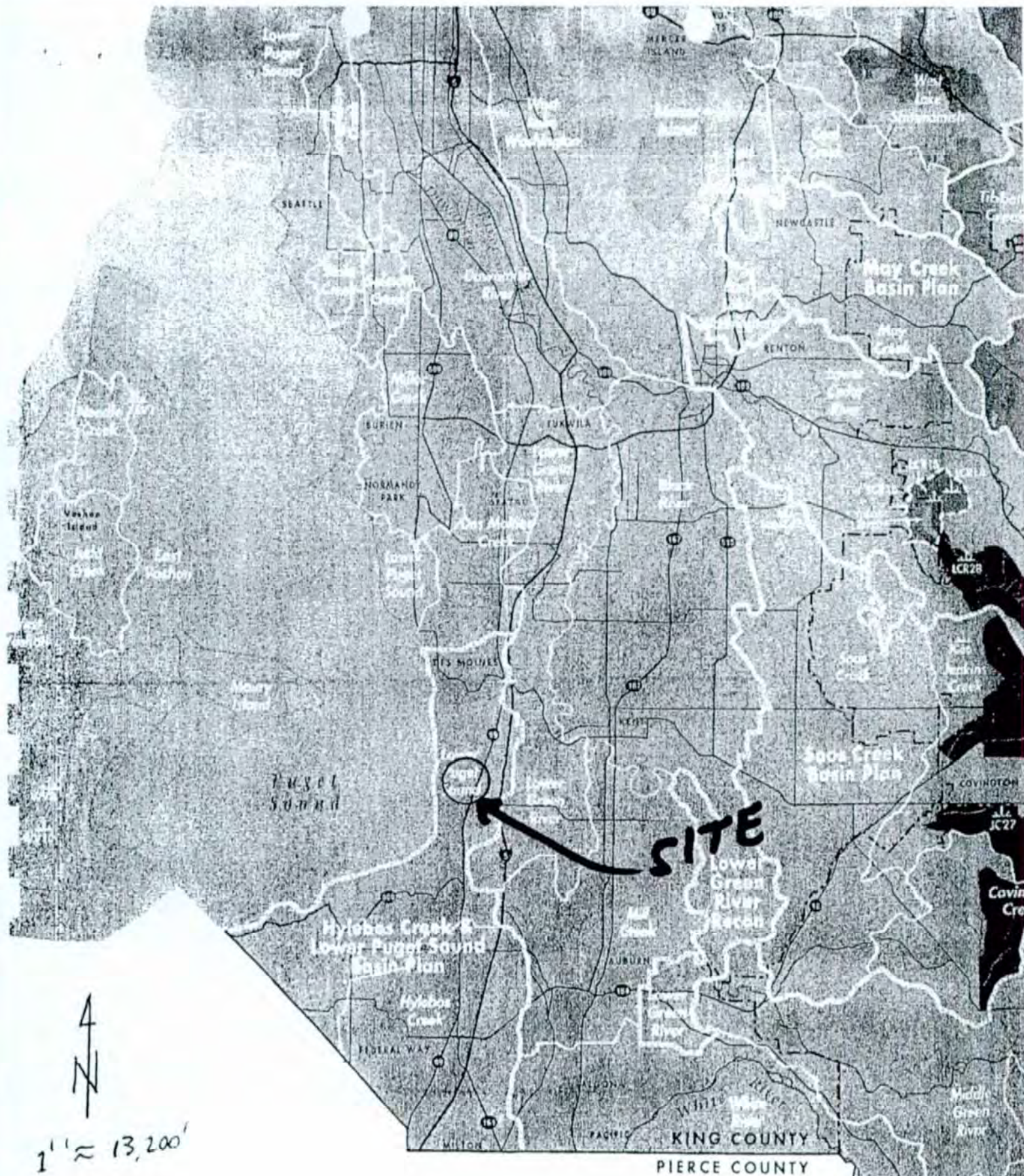


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King County

Exhibit D

Lower Puget Sound Basin Area

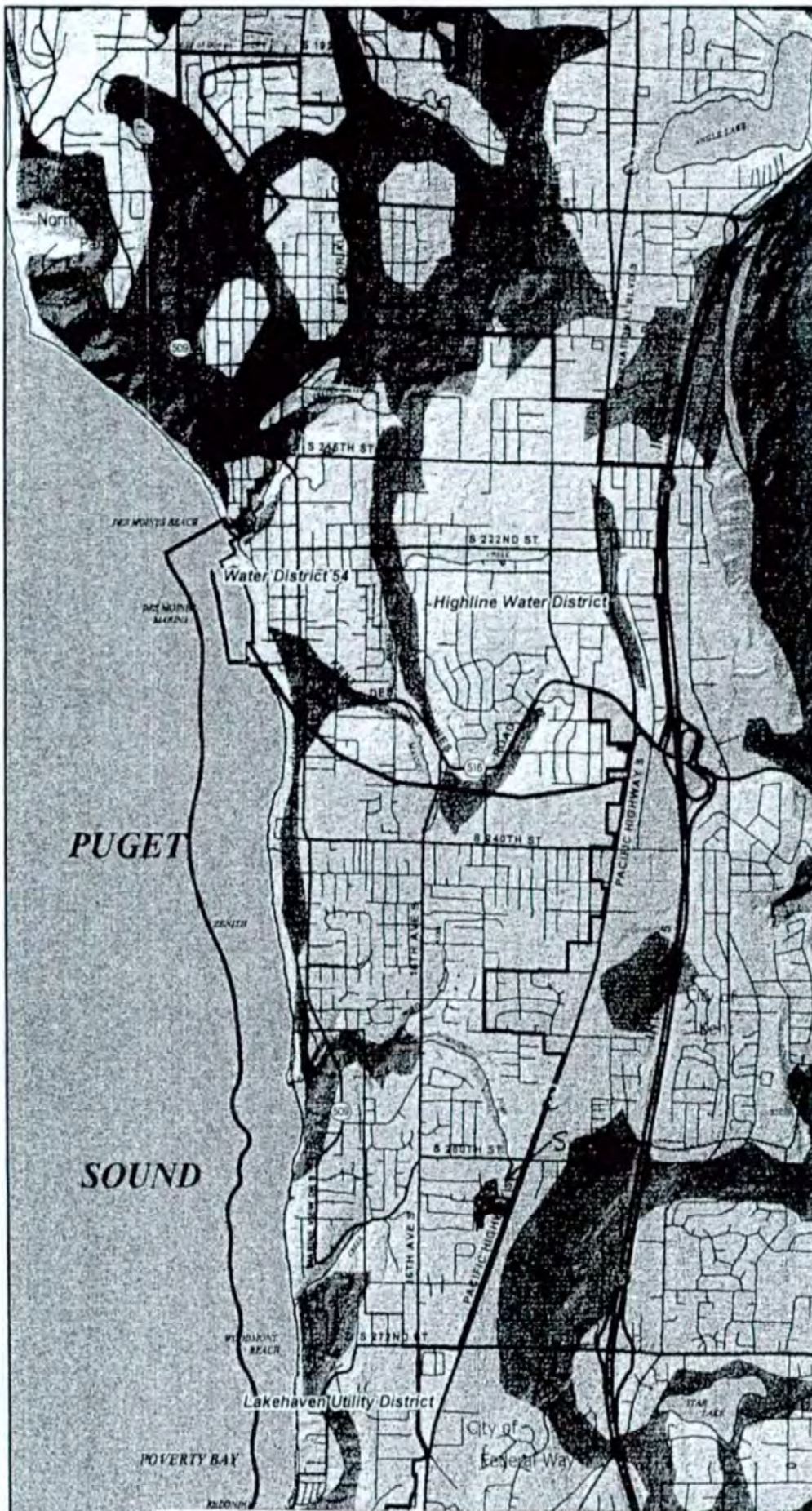
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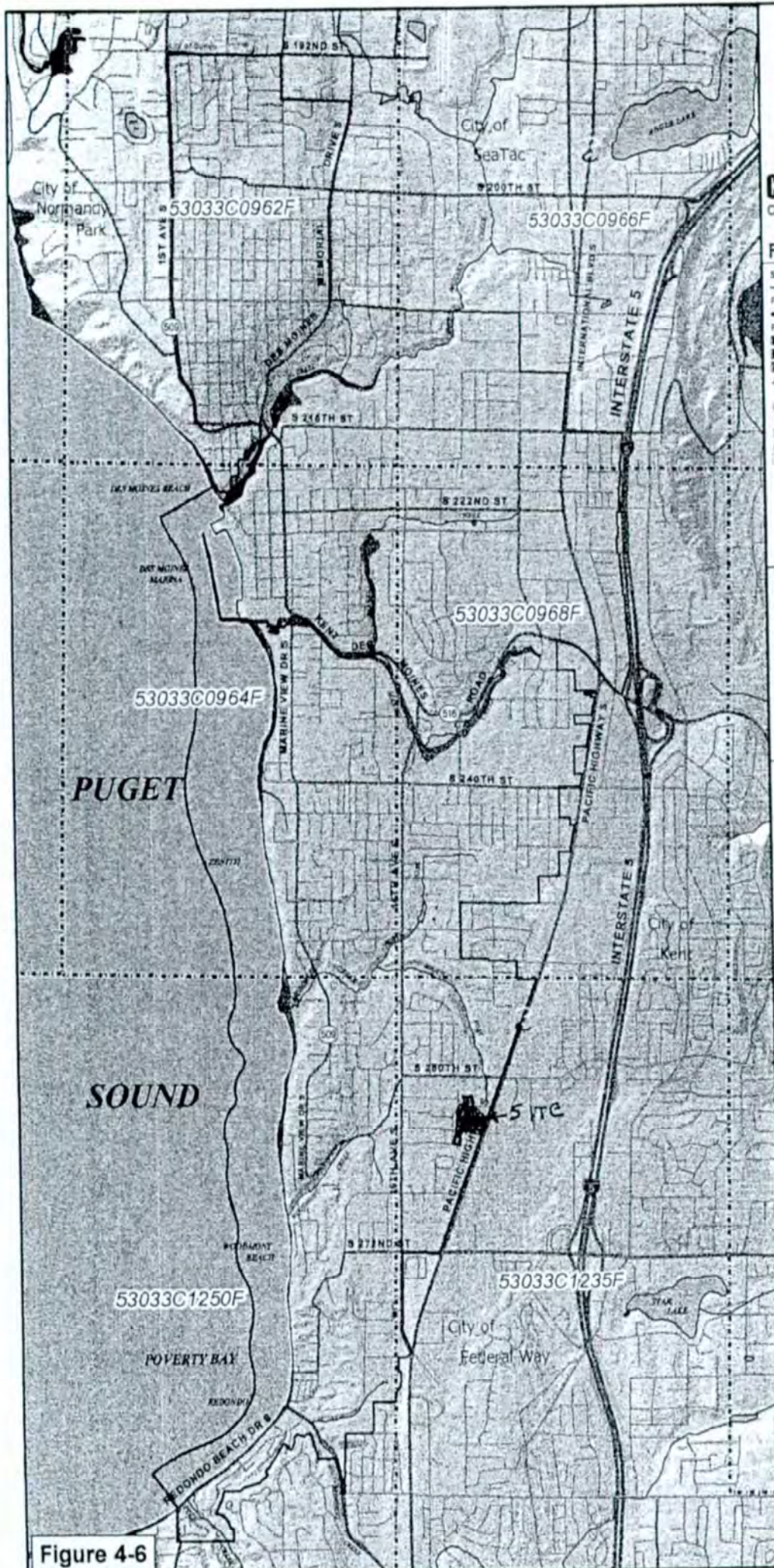
JOINS PANEL 0319



Exhibit E

Flood Plain/Floodway (FEMA) Map





City of Des Moines Critical Area Map Series Frequently Flooded Areas

- Streams**
- FIRM Map Boundary**
- Frequently Flooded Areas**
- Jurisdictions**
- City of Des Moines
- SeaTac
- Normandy
- Federal Way
- Unincorporated King County

**CITY OF DES MOINES
CRITICAL AREAS MAP SERIES**

This map series is intended for general planning purposes related to the Greater Des Moines Comprehensive Plan. The Growth Management Act (GMA) requires that local jurisdictions designate and protect critical areas (as described in RCW 36.70A.005, 36.70A.172(1) and Chapter 365-190 and 365-195 WAC). GMA also requires jurisdictions to include the best available science when designating critical areas. These maps include the best available science to locate, describe and categorize critical areas. However, due to scale, the maps are not precise delineations of every critical area and are not a substitute for a formal analysis. These maps are a compilation of various sources of information in both paper and electronic format. They were created from previous public records and existing map sources. Where available, scientific data and field surveys were digitized at the original scale and merged into the GIS database.

PRIMARY MAP SOURCES AND ORIGINAL SCALES:

PAPER MAP SOURCES

WSDOT Topography 1:24,000 (1"=2,000')

FEMA Flood Insurance Rate Maps - Panel 405
405 & 406 1:24,000 (1"=2,000')

Original Assessment Maps 1:1,000 (1"=100')

1987 & 1988 King County Satellite Aerial Map
Scale 1:24,000 (1"=2,000')

City of Des Moines Surface Water Management Map 1:100,000

ELECTRONIC GIS LAYERS

FEMA National Flood Insurance Program (NFIP) Data (1:24,000)

King County GIS Data (1:24,000) (1"=2,000')

Washington State DOG 7 Des Moines Creek (1:24,000)

Slope derived from USGS 10m Digital Elevation Model (DEM) (1:24,000)

Topographic Data (1:24,000) (1"=2,000')

Topographic Data (1:24,000) (1"=2,000')

Des Moines Community Development Department
December 2003



Community Development
21830 11th Ave S, Suite D
Des Moines, WA 98198-6398
PHONE: (206) 870-7574 * FAX: (206) 870-6544
WEB: <http://www.desmoines.gov>

Figure 4-6



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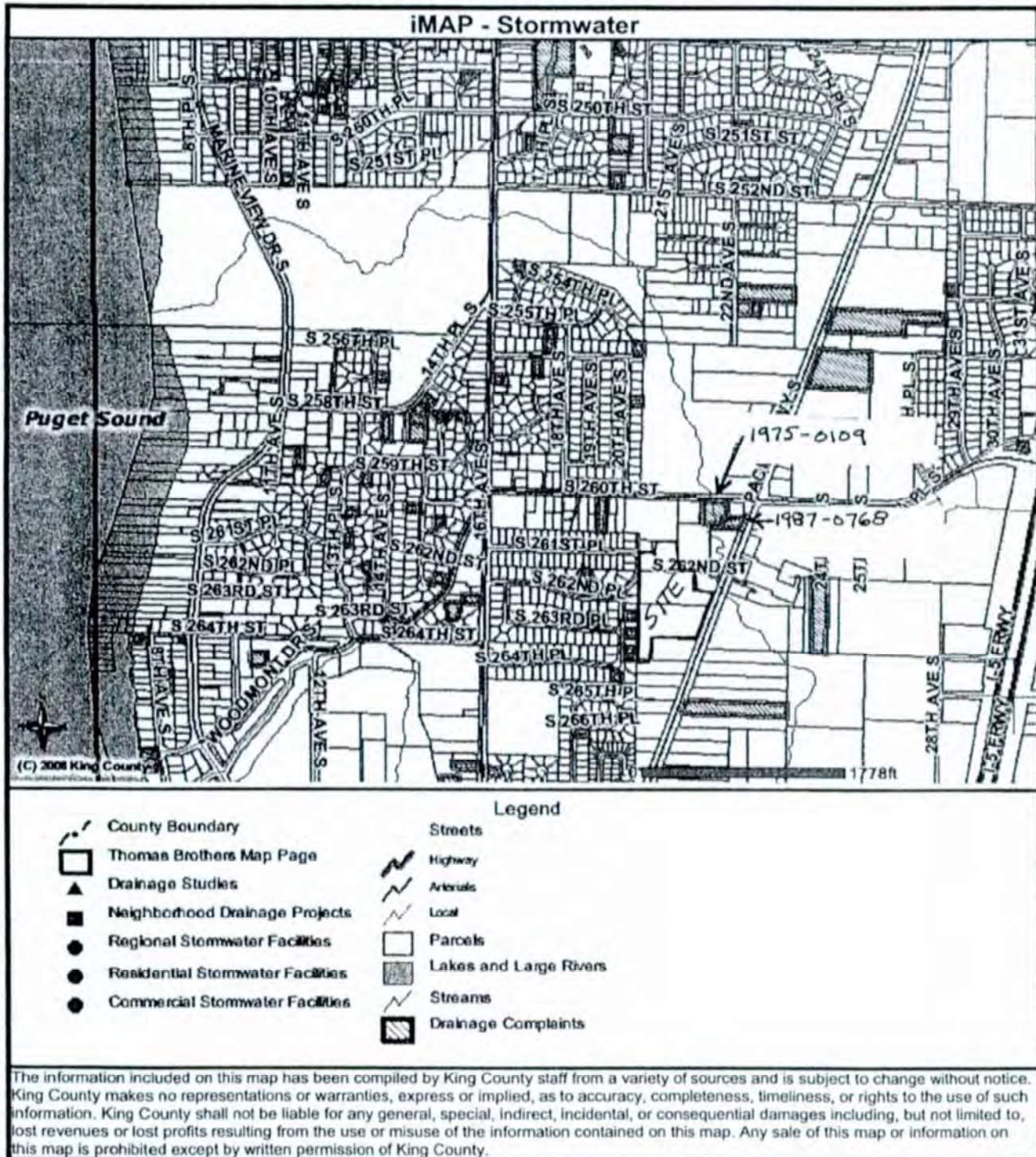


Exhibit G

SWM Division Drainage Investigation information

28

Rec	Complaint No	Status	Problem	Type	Rec Date	TB	PADD	PADD 1	PADD SUF	PIN	NTB
1	1975-0109	CLOSED	FLDG	C	1/3/1975	47D6	2211	S 260TH ST		2822049027	715C3

Rec	Complaint No	Status	Problem	Type	Rec Date	TB	PADD	PADD 1	PADD SUF	PIN	NTB
1	1987-0768	CLOSED	DRNG	E	6/5/1987	54D1	26015	PACIFIC HW	S	2822049217	715C4

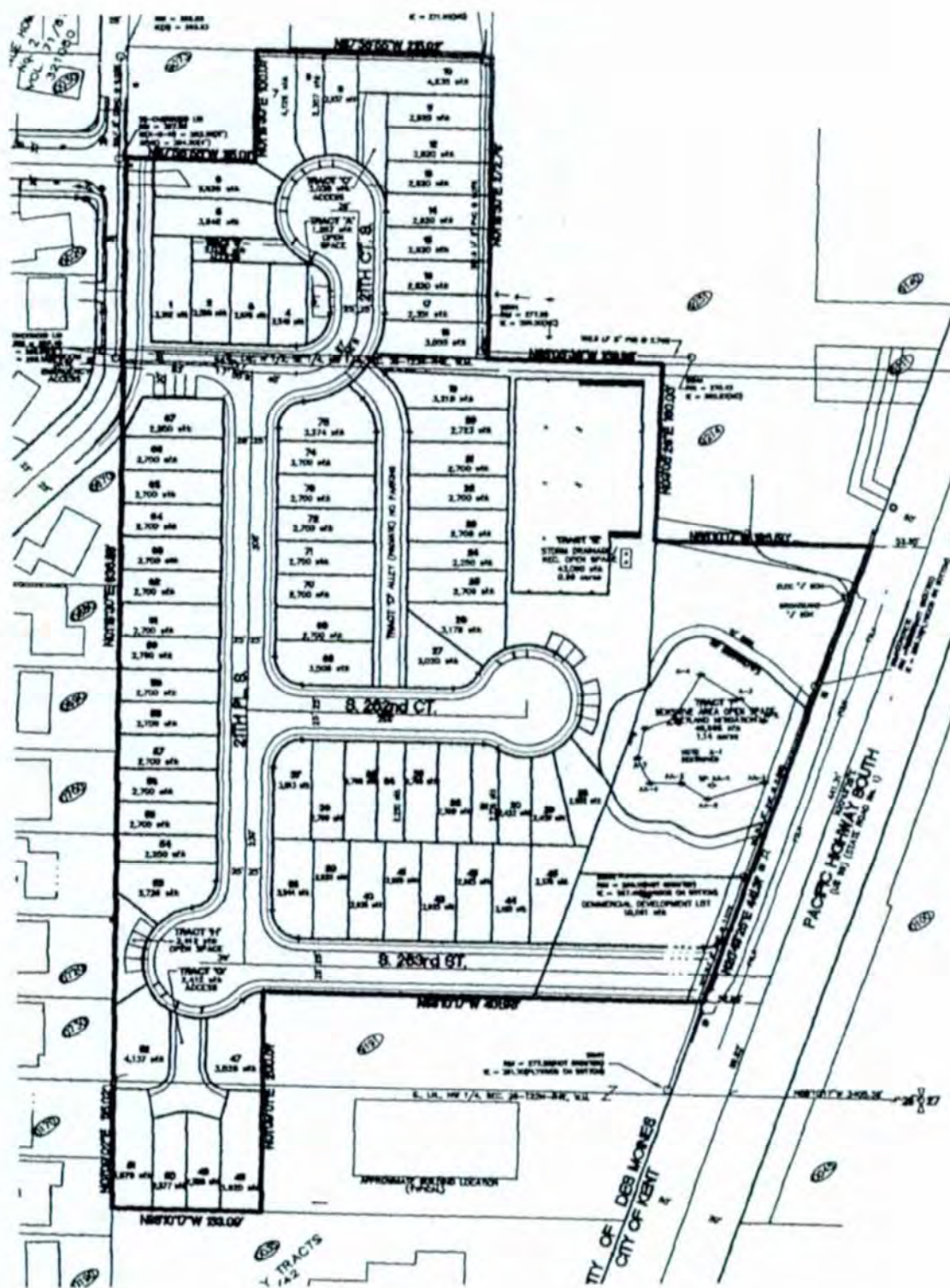
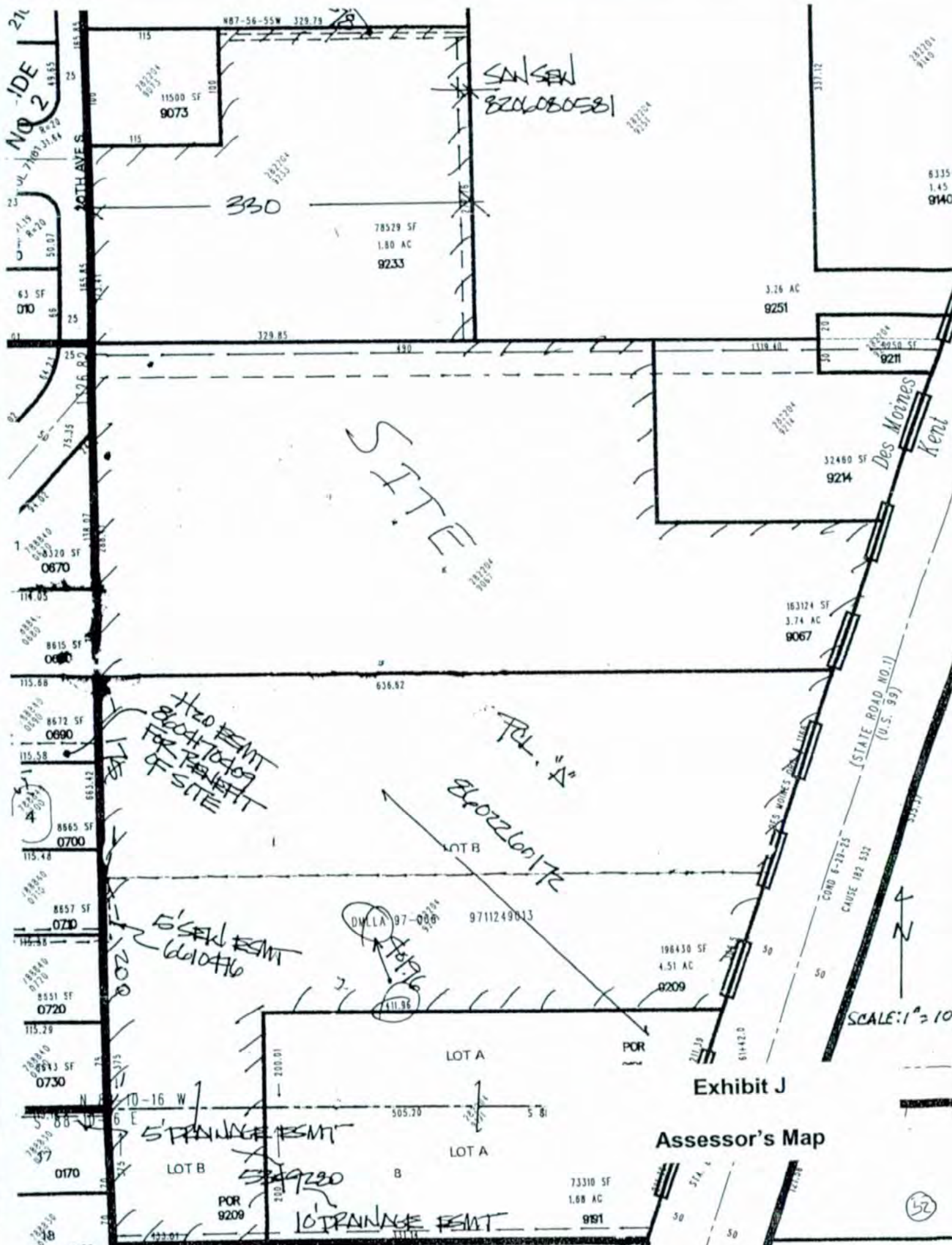


Exhibit I

Site Plan of Landmarque



OFF-SITE ANALYSIS DRAINAGE SYSTEM TABLE **Surface Water Design Manual, Core Requirement #2**

EASTERLY DISCHARGE

Basin: **McSorley Creek**

Subbasin Name:

Subbasin Number:

Symbol	Drainage Component Type, Name, and Size	Drainage Component Description	Slope	Distance from site discharge	Existing Problems	Potential Problems	Observations of field inspector resource reviewer, or resident
See Map	Type: sheet flow, swale, stream, channel, pipe, pond, size, diameter, and surface area	drainage basin, vegetation, cover, depth, type of sensitive area, volume	%	1/4 mi = 1,320 ft	constrictions, under capacity, ponding, overtopping, flooding, habitat or organism destruction, scouring, bank sloughing, sedimentation, incision, other erosion		tributary area, likelihood of problem, overflow pathways, potential impacts
1	12-inch pipe	Ductile Iron	1%	0'-20'	None Observed	None	No problems observed
2	18-inch pipe	Concrete	2%	20'-200'	None Observed	None	No problems observed
3	24-inch pipe	Concrete	2%	200'-234'	None Observed	None	No problems observed
4	24-inch pipe	Concrete	2%	235'-380'	None Observed	None	No problems observed
5	48-inch pipe	Concrete	2%	380'-520'	None Observed	None	No problems observed
6	Detention Pond	Open water	0%	520'-820'	None Observed	None	No problems observed
7	36-inch pipe	Concrete	2%	820'-840'	None Observed	None	No problems observed
8	36-inch pipe	Concrete	3%	840'-915'	None Observed	None	No problems observed
9	36-inch pipe	Concrete	3%	915'-935'	None Observed	None	No problems observed
10	Rock Channel	Rip Rap Outlet Pad	45%	935'-975'	None Observed	None	No problems observed. Merge point with Northeasterly Discharge.
11	McSorley Creek	Gravel base	3%	975'-1305'	None Observed	None	No problems observed
12	60-inch pipe	Corrugated Metal	3%	1305'-1455'	None Observed	None	No problems observed
13	McSorley Creek	Gravel base	3%	1455'-Sound	None Observed	None	No problems observed

NORTHEASTERLY DISCHARGE

Basin: **McSorley Creek**

Subbasin Name:

Subbasin Number:

Symbol	Drainage Component Type	Drainage Component Description	Slope	Distance from site	Existing Problems	Potential Problems	Observations of field inspector resource reviewer, or resident
See Map	Type: sheet flow, swale, stream, channel, pipe, pond, size, diameter, and surface area	drainage basin, vegetation, cover, depth, type of sensitive area, volume	%	1/4 mi = 1,320 ft	constrictions, under capacity, ponding, overtopping, flooding, habitat or organism destruction, scouring, bank sloughing		tributary area, likelihood of problem, overflow pathways, potential impacts
14	Sheet flow	Grass and gravel	3%	0'-22'	None Observed	None	No problems observed
15	6-inch pipe	Corrugated polyethylene pipe	2%	22'-112'	None Observed	None	No problems observed
16	McSorley Creek	Gravel base	3%	112'-132'	None Observed	None	No problems observed
17	60-inch pipe	Corrugated Metal	2%	132'-227'	None Observed	None	No problems observed
18	McSorley Creek	Gravel base	3%	227'-247'	None Observed	None	No problems observed. Merge point with Easterly Discharge.

Exhibit K

Off-Site Analysis Drainage System Table

SECTION IV

FLOW CONTROL AND WATER QUALITY FACILITY ANALYSIS AND DESIGN

EXISTING CONDITION

KCRTS Command

CREATE a new Time Series

Production of Runoff Time Series

Project Location : Sea-Tac
Computing Series : a:predev.tsf
Regional Scale Factor : 1.00
Data Type : Reduced
Creating Hourly Time Series File
Loading Time Series File:C:\KC_SWDM\KC_DATA\STTF60R.rnf 8
Till Forest 8.10 acres Scaling Yr: 8

Total Area : 8.10 acres
Peak Discharge: 0.653 CFS at 9:00 on Jan 9 in Year 8
Storing Time Series File:a:predev.tsf 8

Time Series Computed

NOTE! APPROX. ROOF AREAS FROM FUTURE LOTS 27 THROUGH 42 AS WELL
AS THE ENTIRE LOT 43 WERE REMOVED FROM THE BASIN AREA.
ROOF AREAS WERE BASED ON SETBACK LINES.

Flow Frequency Analysis

Time Series File:a:predev.tsf
Project Location:Sea-Tac

---Annual Peak Flow Rates---				-----Flow Frequency Analysis-----			
Flow Rate (CFS)	Rank	Time of Peak		- - Peaks - - (CFS)	Rank	Return Period	Prob
0.511	2	2/09/01	18:00	0.653	1	100.00	0.990
0.139	7	1/06/02	3:00	0.511	2	25.00	0.960
0.379	4	2/28/03	3:00	0.392	3	10.00	0.900
0.013	8	3/24/04	20:00	0.379	4	5.00	0.800
0.225	6	1/05/05	8:00	0.331	5	3.00	0.667
0.392	3	1/18/06	21:00	0.225	6	2.00	0.500
0.331	5	11/24/06	4:00	0.139	7	1.30	0.231
0.653	1	1/09/08	9:00	0.013	8	1.10	0.091
Computed Peaks				0.606		50.00	0.980

$$\text{FIRST INTERVAL} = 0.225 \times 0.5 = 0.1125$$
$$\text{INTERVAL SIZE} = (0.606 - 0.225 \times 0.5) / (36 - 1) = 0.014$$

KCRTS Command

CREATE a new Time Series

Production of Runoff Time Series

Project Location : Sea-Tac
Computing Series : a:dev.tsf
Regional Scale Factor : 1.00
Data Type : Reduced
Creating Hourly Time Series File
Loading Time Series File:C:\KC_SWDM\KC_DATA\STTG60R.rnf 8
Till Grass 3.35 acres Scaling Yr: 8
Loading Time Series File:C:\KC_SWDM\KC_DATA\STEI60R.rnf 8
Impervious 4.75 acres Adding Yr: 8

Total Area : 8.10 acres
Peak Discharge: 2.95 CFS at 6:00 on Jan 9 in Year 8
Storing Time Series File:a:dev.tsf 8

Time Series Computed

NOTE: ROOF AREAS FROM LOTS 27- 42 AS WELL AS THE ENTIRE LOT 43 WERE NOT INCLUDED IN THE BASIN AREA. ROOF AREAS WERE BASED ON SETBACK LINES.

Flow Frequency Analysis

Time Series File:a:dev.tsf
Project Location:Sea-Tac

---Annual Peak Flow Rates---				-----Flow Frequency Analysis-----			
Flow Rate (CFS)	Rank	Time of Peak		Peaks	Rank	Return Period	Prob
1.45	6	2/09/01	2:00	2.95	1	100.00	0.990
1.17	8	1/05/02	16:00	1.81	2	25.00	0.960
1.75	3	2/27/03	7:00	1.75	3	10.00	0.900
1.25	7	8/26/04	2:00	1.54	4	5.00	0.800
1.50	5	10/28/04	16:00	1.50	5	3.00	0.667
1.54	4	1/18/06	16:00	1.45	6	2.00	0.500
1.81	2	10/26/06	0:00	1.25	7	1.30	0.231
2.95	1	1/09/08	6:00	1.17	8	1.10	0.091
Computed Peaks				2.57		50.00	0.980

Retention/Detention Facility

Type of Facility: Detention Vault
 Facility Length: 145.00 ft
 Facility Width: 110.00 ft
 Facility Area: 15950. sq. ft
 Effective Storage Depth: 6.75 ft
 Stage 0 Elevation: 266.00 ft
 Storage Volume: 107663. cu. ft ← *REQUIRED VOLUME*
 Riser Head: 6.75 ft
 Riser Diameter: 18.00 inches
 Number of orifices: 3

VOLUME PROPOSED

Orifice #	Height (ft)	Diameter (in)	Full Head Discharge (CFS)	Pipe Diameter (in)
1	0.00	1.42	0.142	
2	4.20	2.90	0.364	6.0
3	5.60	2.00	0.116	4.0

$$140' \times 4 \times 28.33' \times 6.75' \\ = 113,207 \text{ ft}^3 > 107,663 \text{ ft}^3 \\ \therefore \text{OK}$$

Top Notch Weir: None
 Outflow Rating Curve: None

Stage (ft)	Elevation (ft)	Storage (cu. ft)	Discharge (ac-ft)	Percolation (cfs)
0.00	266.00	0.	0.000	0.000
0.01	266.01	160.	0.004	0.007
0.03	266.03	479.	0.011	0.009
0.04	266.04	638.	0.015	0.012
0.06	266.06	957.	0.022	0.013
0.07	266.07	1117.	0.026	0.015
0.09	266.09	1436.	0.033	0.016
0.10	266.10	1595.	0.037	0.018
0.12	266.12	1914.	0.044	0.019
0.25	266.25	3988.	0.092	0.027
0.38	266.38	6061.	0.139	0.034
0.52	266.52	8294.	0.190	0.039
0.65	266.65	10368.	0.238	0.044
0.78	266.78	12441.	0.286	0.048
0.91	266.91	14515.	0.333	0.052
1.04	267.04	16588.	0.381	0.056
1.18	267.18	18821.	0.432	0.059
1.31	267.31	20895.	0.480	0.063
1.44	267.44	22968.	0.527	0.066
1.57	267.57	25042.	0.575	0.069
1.71	267.71	27275.	0.626	0.071
1.84	267.84	29348.	0.674	0.074
1.97	267.97	31422.	0.721	0.077
2.10	268.10	33495.	0.769	0.079
2.24	268.24	35728.	0.820	0.082
2.37	268.37	37802.	0.868	0.084
2.50	268.50	39875.	0.915	0.086
2.63	268.63	41949.	0.963	0.089
2.77	268.77	44182.	1.014	0.091
2.90	268.90	46255.	1.062	0.093
3.03	269.03	48329.	1.109	0.095

3.16	269.16	50402.	1.157	0.097	0.00
3.29	269.29	52476.	1.205	0.099	0.00
3.43	269.43	54709.	1.256	0.101	0.00
3.56	269.56	56782.	1.304	0.103	0.00
3.69	269.69	58856.	1.351	0.105	0.00
3.82	269.82	60929.	1.399	0.107	0.00
3.96	269.96	63162.	1.450	0.109	0.00
4.09	270.09	65236.	1.498	0.111	0.00
4.20	270.20	66990.	1.538	0.112	0.00
4.23	270.23	67469.	1.549	0.115	0.00
4.26	270.26	67947.	1.560	0.121	0.00
4.29	270.29	68426.	1.571	0.133	0.00
4.32	270.32	68904.	1.582	0.148	0.00
4.35	270.35	69383.	1.593	0.166	0.00
4.38	270.38	69861.	1.604	0.188	0.00
4.41	270.41	70340.	1.615	0.215	0.00
4.44	270.44	70818.	1.626	0.227	0.00
4.47	270.47	71297.	1.637	0.235	0.00
4.60	270.60	73370.	1.684	0.262	0.00
4.74	270.74	75603.	1.736	0.286	0.00
4.87	270.87	77677.	1.783	0.307	0.00
5.00	271.00	79750.	1.831	0.327	0.00
5.13	271.13	81824.	1.878	0.344	0.00
5.27	271.27	84057.	1.930	0.361	0.00
5.40	271.40	86130.	1.977	0.377	0.00
5.53	271.53	88204.	2.025	0.392	0.00
5.60	271.60	89320.	2.051	0.399	0.00
5.62	271.62	89639.	2.058	0.402	0.00
5.64	271.64	89958.	2.065	0.407	0.00
5.66	271.66	90277.	2.072	0.413	0.00
5.68	271.68	90596.	2.080	0.421	0.00
5.70	271.70	90915.	2.087	0.431	0.00
5.73	271.73	91394.	2.098	0.442	0.00
5.75	271.75	91713.	2.105	0.453	0.00
5.77	271.77	92032.	2.113	0.461	0.00
5.90	271.90	94105.	2.160	0.490	0.00
6.03	272.03	96179.	2.208	0.514	0.00
6.16	272.16	98252.	2.256	0.537	0.00
6.30	272.30	100485.	2.307	0.558	0.00
6.43	272.43	102559.	2.354	0.578	0.00
6.56	272.56	104632.	2.402	0.597	0.00
6.69	272.69	106706.	2.450	0.615	0.00
6.75	272.75	107663.	2.472	0.623	0.00
6.85	272.85	109258.	2.508	1.100	0.00
6.95	272.95	110853.	2.545	1.960	0.00
7.05	273.05	112448.	2.581	3.060	0.00
7.15	273.15	114043.	2.618	4.370	0.00
7.25	273.25	115638.	2.655	5.850	0.00
7.35	273.35	117233.	2.691	7.290	0.00
7.45	273.45	118828.	2.728	7.830	0.00
7.55	273.55	120423.	2.765	8.330	0.00
7.65	273.65	122018.	2.801	8.800	0.00
7.75	273.75	123613.	2.838	9.250	0.00
7.85	273.85	125208.	2.874	9.680	0.00
7.95	273.95	126803.	2.911	10.080	0.00
8.05	274.05	128398.	2.948	10.470	0.00
8.15	274.15	129992.	2.984	10.850	0.00

8.25	274.25	131588.	3.021	11.210	0.00
8.35	274.35	133183.	3.057	11.570	0.00
8.45	274.45	134778.	3.094	11.910	0.00
8.55	274.55	136373.	3.131	12.240	0.00
8.65	274.65	137968.	3.167	12.560	0.00

Hyd	Inflow	Outflow		Peak		Storage	
		Target	Calc	Stage	Elev	(Cu-Ft)	(Ac-Ft)
1	2.95	0.65	> 0.60	6.56	272.56	104580.	2.401
2	1.45	*****	ok 0.50	5.95	271.95	94978.	2.180
3	1.75	0.39	> 0.38	5.46	271.46	87138.	2.000
4	1.45	*****	ok 0.35	5.22	271.22	83247.	1.911
5	1.54	*****	0.17	4.36	270.36	69507.	1.596
6	0.91	0.22	> 0.11	3.89	269.89	62058.	1.425
7	1.17	*****	ok 0.10	3.55	269.55	56578.	1.299
8	1.25	*****	0.08	2.25	268.25	35959.	0.826

Route Time Series through Facility
Inflow Time Series File:a:dev.tsf
Outflow Time Series File:a:rdout

Inflow/Outflow Analysis

Peak Inflow Discharge: 2.95 CFS at 6:00 on Jan 9 in Year 8
Peak Outflow Discharge: 0.597 CFS at 12:00 on Jan 9 in Year 8
Peak Reservoir Stage: 6.56 Ft
Peak Reservoir Elev: 272.56 Ft
Peak Reservoir Storage: 104580. Cu-Ft
: 2.401 Ac-Ft

Flow Frequency Analysis

Time Series File:a:rdout.tsf
Project Location:Sea-Tac

---Annual Peak Flow Rates---				-----Flow Frequency Analysis-----			
Flow Rate (CFS)	Rank	Time of Peak		Peaks (CFS)	Rank (ft)	Return Period	Prob
0.521	2	2/09/01	20:00	0.597	6.56	1	100.00
0.104	7	1/07/02	3:00	0.521	6.07	2	25.00
0.384	3	3/06/03	22:00	0.384	5.46	3	10.00
0.082	8	8/26/04	7:00	0.355	5.22	4	5.00
0.108	6	1/08/05	5:00	0.174	4.36	5	3.00
0.174	5	1/19/06	4:00	0.108	3.89	6	2.00
0.355	4	11/24/06	8:00	0.104	3.60	7	1.30
0.597	1	1/09/08	12:00	0.082	2.25	8	1.10
Computed Peaks				0.571	6.39		50.00

Flow Duration from Time Series File:a:rdout.tsf

Cutoff	Count	Frequency	CDF	Exceedence	Probability
CFS		%	%	%	
0.007	29627	48.315	48.315	51.685	0.517E+00
0.022	8531	13.912	62.228	37.772	0.378E+00
0.037	6572	10.718	72.945	27.055	0.271E+00
0.051	5923	9.659	82.604	17.396	0.174E+00
0.066	4590	7.485	90.090	9.910	0.991E-01
0.081	2463	4.017	94.106	5.894	0.589E-01
0.095	1912	3.118	97.224	2.776	0.278E-01
0.110	1200	1.957	99.181	0.819	0.819E-02
0.124	211	0.344	99.525	0.475	0.475E-02
0.139	38	0.062	99.587	0.413	0.413E-02
0.154	24	0.039	99.627	0.373	0.373E-02
0.168	20	0.033	99.659	0.341	0.341E-02
0.183	16	0.026	99.685	0.315	0.315E-02
0.198	12	0.020	99.705	0.295	0.295E-02
0.212	8	0.013	99.718	0.282	0.282E-02
0.227	12	0.020	99.737	0.263	0.263E-02
0.242	26	0.042	99.780	0.220	0.220E-02
0.256	14	0.023	99.803	0.197	0.197E-02
0.271	13	0.021	99.824	0.176	0.176E-02
0.285	9	0.015	99.839	0.161	0.161E-02
0.300	10	0.016	99.855	0.145	0.145E-02
0.315	13	0.021	99.876	0.124	0.124E-02
0.329	9	0.015	99.891	0.109	0.109E-02
0.344	12	0.020	99.910	0.090	0.897E-03
0.359	13	0.021	99.932	0.068	0.685E-03
0.373	12	0.020	99.951	0.049	0.489E-03
0.388	13	0.021	99.972	0.028	0.277E-03
0.403	3	0.005	99.977	0.023	0.228E-03
0.417	1	0.002	99.979	0.021	0.212E-03
0.432	1	0.002	99.980	0.020	0.196E-03
0.446	0	0.000	99.980	0.020	0.196E-03
0.461	2	0.003	99.984	0.016	0.163E-03
0.476	1	0.002	99.985	0.015	0.147E-03
0.490	2	0.003	99.989	0.011	0.114E-03
0.505	3	0.005	99.993	0.007	0.652E-04
0.520	3	0.005	99.998	0.002	0.163E-04

Duration Comparison Analysis

Base File: a:predev.tsf

New File: a:rdout.tsf

Cutoff Units: Discharge in CFS

-----Fraction of Time-----				-----Check of Tolerance-----			
Cutoff	Base	New	%Change	Probability	Base	New	%Change
0.113	0.94E-02	0.57E-02	-39.7	0.94E-02	0.113	0.108	-4.1
0.144	0.62E-02	0.40E-02	-36.3	0.62E-02	0.144	0.112	-22.2
0.174	0.49E-02	0.32E-02	-34.0	0.49E-02	0.174	0.121	-30.4
0.205	0.37E-02	0.29E-02	-21.7	0.37E-02	0.205	0.157	-23.4
0.235	0.28E-02	0.25E-02	-13.2	0.28E-02	0.235	0.212	-10.2
0.266	0.22E-02	0.18E-02	-18.5	0.22E-02	0.266	0.242	-9.0
0.297	0.15E-02	0.15E-02	1.1	0.15E-02	0.297	0.299	0.6
0.327	0.99E-03	0.11E-02	11.5	0.99E-03	0.327	0.337	3.1
0.358	0.62E-03	0.70E-03	13.2	0.62E-03	0.358	0.362	1.2
0.389	0.34E-03	0.28E-03	-19.0	0.34E-03	0.389	0.382	-1.7
0.419	0.21E-03	0.21E-03	0.0	0.21E-03	0.419	0.424	1.1
0.450	0.16E-03	0.18E-03	10.0	0.16E-03	0.450	0.467	3.8
0.481	0.98E-04	0.11E-03	16.7	0.98E-04	0.481	0.494	2.8

< 0.05

MORE THAN
HALF < 0

∴ OK

none > 10%

∴ OK

Maximum positive excursion = 0.030 cfs (6.9%)

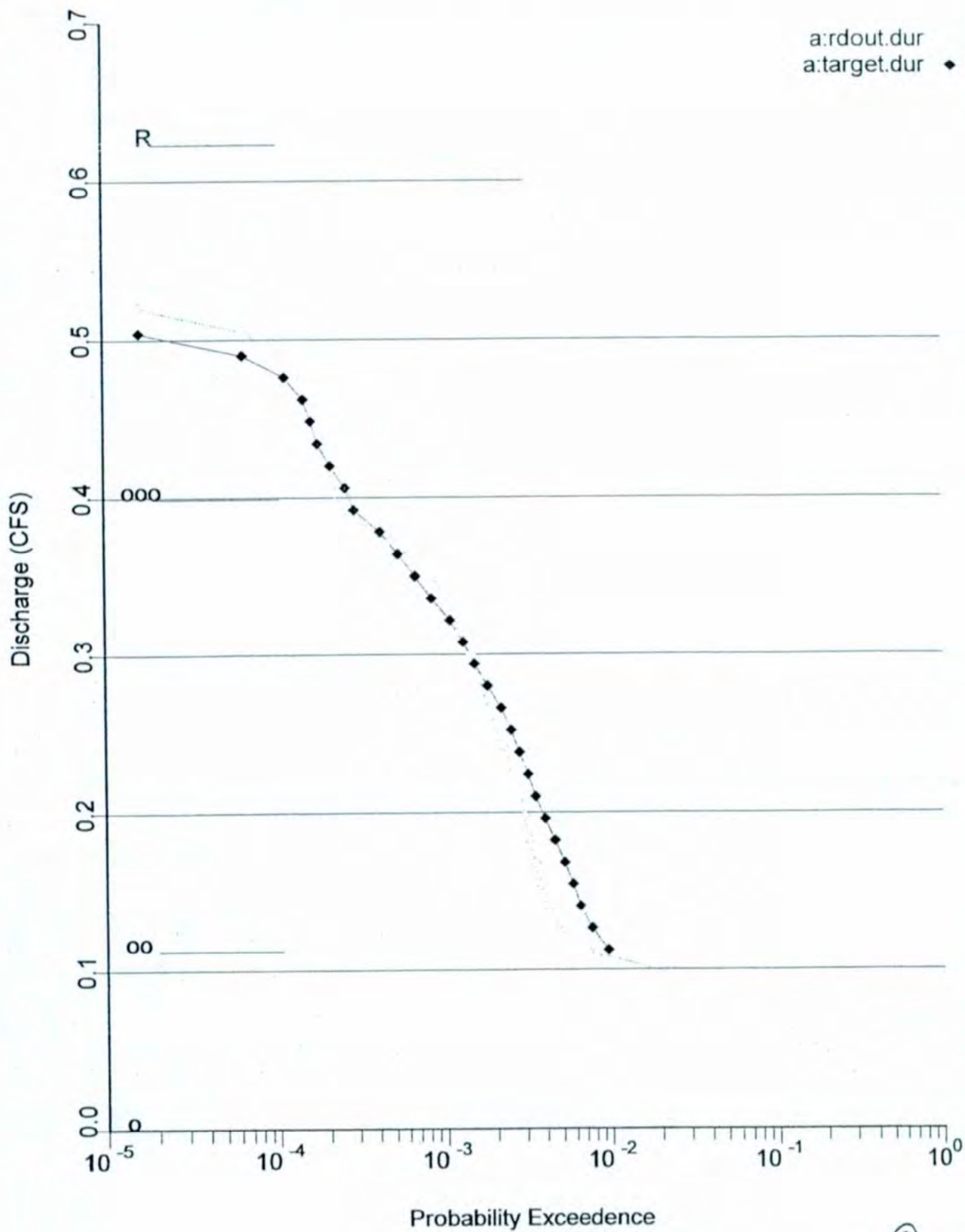
occurring at 0.428 cfs on the Base Data:a:predev.tsf

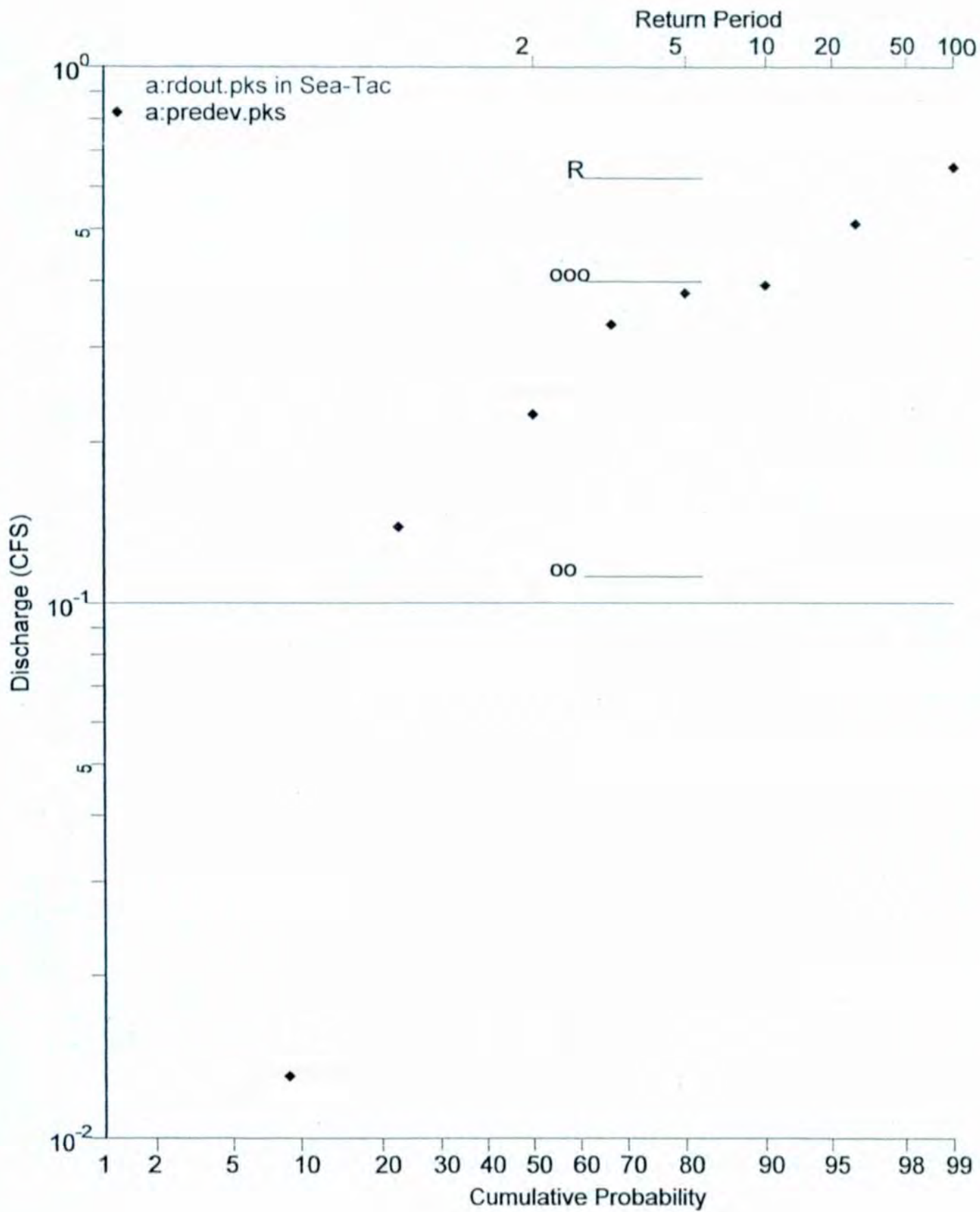
and at 0.458 cfs on the New Data:a:rdout.tsf

Maximum negative excursion = 0.054 cfs (-30.9%)

occurring at 0.173 cfs on the Base Data:a:predev.tsf

and at 0.120 cfs on the New Data:a:rdout.tsf





DATE: 02/15/07
JOB: 06-110

WATER QUALITY DESIGN - WETVAULT

STEP 1:

VOLUME FACTOR (f) = 3

STEP 2:

RAINFALL FROM MEAN ANNUAL STORM (R) = 0.47 inch

STEP 3:

VOLUME OR RUNOFF FROM MEAN ANNUAL STORM (Vr)

$$V_r = (0.9 A_i + 0.25 A_{tg} + 0.10 A_{tf} + 0.01 A_o) \times (R/12)$$

WHERE: A_i = AREA OF IMPERVIOUS SURFACE = 206910 sf
 A_{tg} = AREA OF TILL SOIL (GRASS) = 145926 sf
 A_{tf} = AREA OF TILL SOIL (FOREST) = 0 sf
 A_o = AREA OF OUTWASH SOIL (GRASS OR FOREST) = 0 sf

$$V_r = [0.9 (206910) + 0.25 (145926) + 0.10 (0) + 0.01 (0)] \times (0.47/12) \\ = 8723 \text{ cu. ft.}$$

STEP 4:

WETPOND VOLUME

$$V_b = f (V_r) \\ = 26169 \text{ cu. ft.}$$

$$\text{VOLUME AVAILABLE} = 3.4 \times (148 \times 2) \times 28.33 = 28,511 > 26,169'.$$

OK

NOTE: ONLY 1 CELL PROVIDED SINCE L TO W RATIO IS GREATER THAN 5:1.

GRATE AREA CALC.

MANUAL REQUIRES GRATE AREA TO BE 4% OF SECOND CELL, SINCE THERE IS ONLY ONE LONG CELL, TOTAL AREA WILL BE DIVIDED BY TWO TO DETERMINE GRATE AREA,

$$1/2 \text{ OF TOTAL AREA} = (148 \times 2) \times 28.33 \times 0.5 = 4,193 \text{ SF}$$

$$\text{GRATE AREA REQUIRED} = 4,193 \times 0.04 = 168 \text{ SF}$$

$$\text{GRATE AREA PROPOSED} = 14 \times 4 + 28.33 \times 4$$

$$= 56 + 113.32 = 169.32 > 168 \therefore \text{OK}$$

DMP, INC.
Engineering - Surveying - Land Planning
726 Auburn Way North
AUBURN, WASHINGTON 98002
(253) 854-9344
FAX (253) 854-6663

JOB _____
SHEET NO. _____ OF _____
CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____
SCALE _____

PRELIMINARY STORMFILTER SIZING

$$Q_{\text{TREATMENT}} = 2\text{-YR VAULT RELEASE} = 0.11 \text{ cfs}$$

$$\text{NUMBER OF CARTRIDGES} = 0.11 (449 / 7.5) = 6.6 \approx 7 \text{ CART.}$$

∴ USE 6X12 PRECAST VAULT OR CMP PER CONTECH
STORMWATER SOLUTIONS.

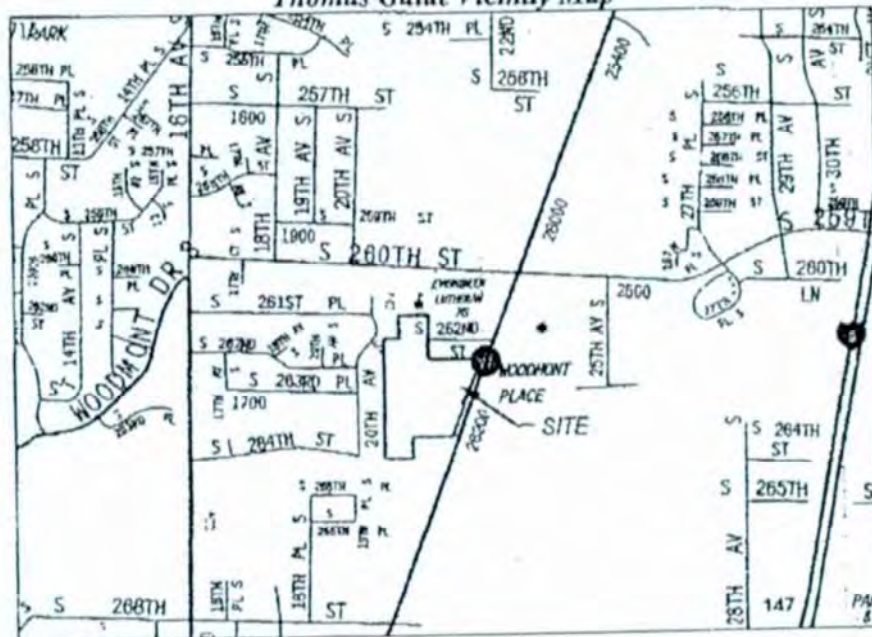
SECTION V

**CONVEYANCE SYSTEM
ANALYSIS AND DESIGN**

TO BE ADDED

SECTION VI
SPECIAL REPORTS & STUDIES

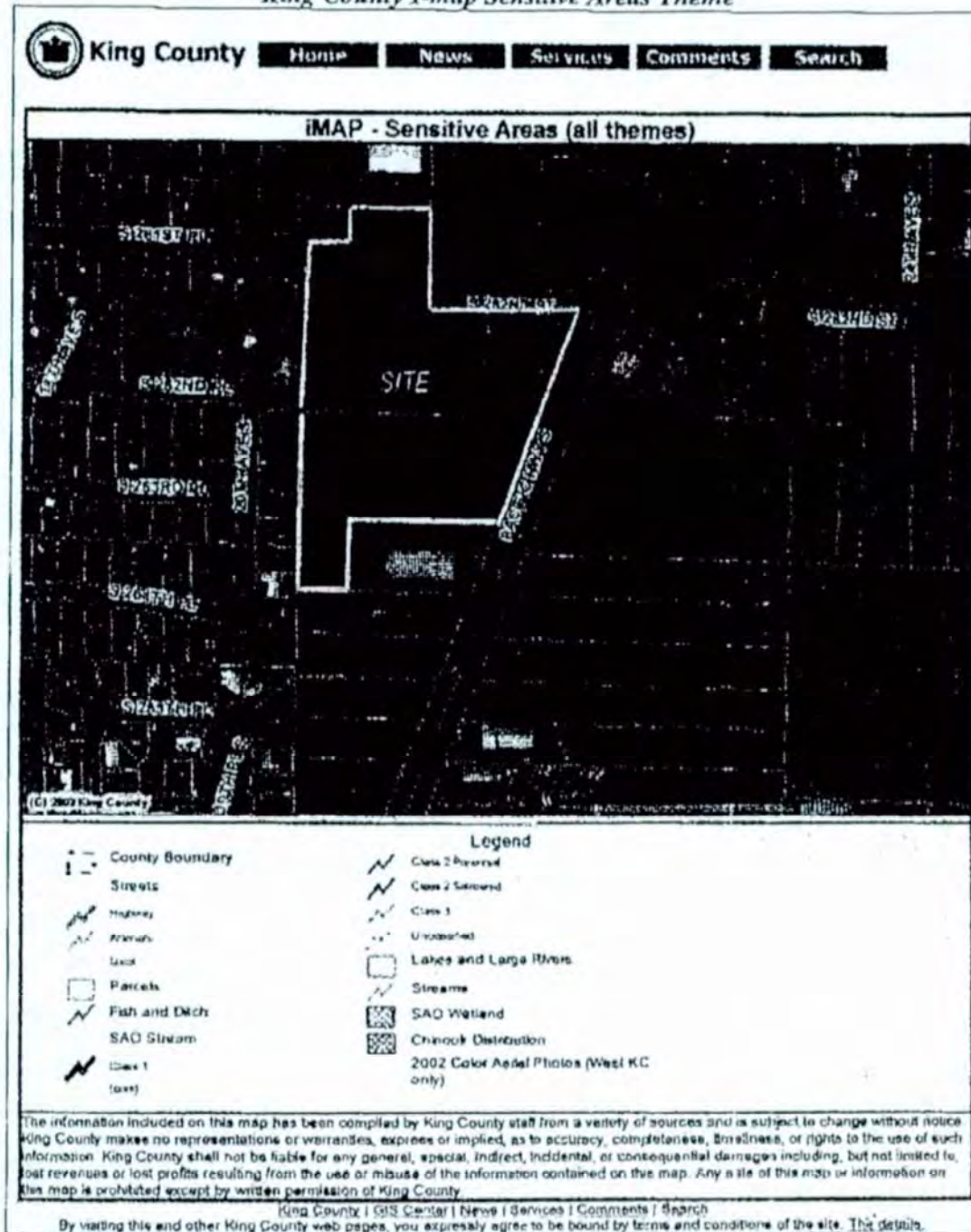
CITY OF DES MOINES, WASHINGTON



1.2 Existing Conditions

The site is currently undeveloped land. Portions of the site are forested with deciduous trees and a shrub underbrush. The remainder of the site is low brush and grasses.

King County I-map Sensitive Areas Theme



2.0 METHODOLOGY

B-12 Wetland Consulting, Inc. inspected the site on May 31, 2005, June 15, 2005, and on June 21, 2005, for jurisdictional wetlands and streams using methodology described in the *Washington State Wetlands Identification Manual* (WADOE, March 1997). This is the methodology currently recognized by the City of Des Moines and the State of Washington for wetland determinations and delineations.

The *Washington State Wetlands Identification Manual* as well as the 1987 Federal Manual requires the use of the three-parameter approach in identifying and delineating wetlands. A wetland should support a predominance of hydrophytic vegetation, have hydric soils and display wetland hydrology. To be considered hydrophytic vegetation, over 50% of the dominant species in an area must have an indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL), according to the National List of Plant Species That Occur in Wetlands: Northwest (Region 9) (Reed, 1988). A hydric soil is "a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part." Anaerobic conditions are indicated in the field by soils with low chromas (2 or less), as determined by using the Munsell Soil Color Charts; iron oxide mottles; hydrogen sulfide odor and other indicators. Generally, wetland hydrology is defined by inundation or saturation to the surface for a consecutive period of 12.5% or greater of the growing season. Areas that contain indicators of wetland hydrology between 5%-12.5% of the growing season may or may not be wetlands depending upon other indicators. Field indicators include visual observation of soil inundation, saturation, oxidized rhizospheres, water marks on trees or other fixed objects, drift lines, etc. Under normal circumstances, indicators of all three parameters will be present in wetland areas. The wetland edges were flagged with pink "Wetland Delineation" flagging labeled consecutively "A-1, A-2..." The data points were marked with orange and black-striped flagging labeled DP #__. Flags were subsequently surveyed by DMP, Inc.

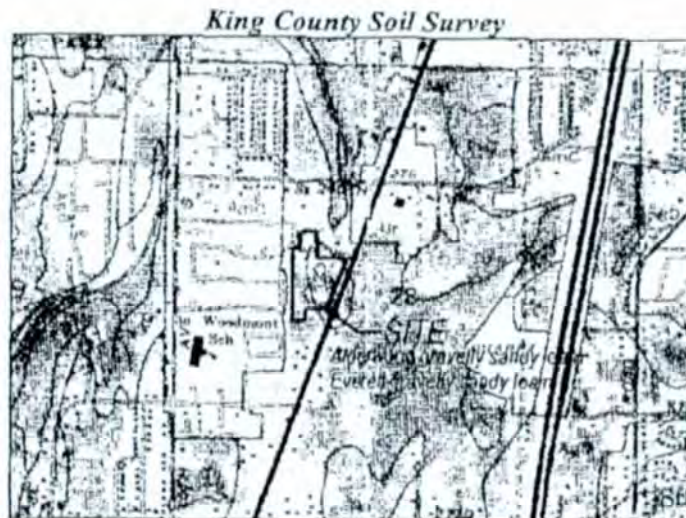
3.0 OBSERVATIONS

3.1 Existing Site Documentation

Prior to visiting the site, a review of several natural resource inventory maps was conducted. Resources reviewed included the King County Soil Survey, City of Des Moines Wetland Atlas, and the National Wetland Inventory.

3.1.1 King County Soil Survey

According to the King County Soil Survey, the site contains Alderwood gravelly, sandy loam (AgC); which typically occurs on slopes of 6-15 percent, and Everett gravelly, sandy loam (EvB); which typically occurs on slopes of 0-5 percent. Alderwood soils are moderately well-drained and formed under conifers in glacial deposits. Everett soils are somewhat excessively drained soils that formed in very gravelly glacial outwash deposits, under conifers. According to the publication, "*Hydric Soils of the United States*" Alderwood and Everett soils are not considered to be *hydric* or wetland soils.



3.1.3 City of Des Moines Surface Water Map

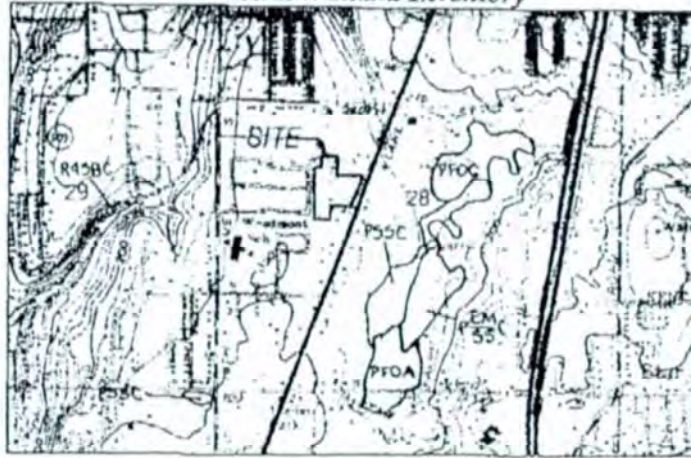
According to the City of Des Moines Surface Water Map, there are no wetlands or streams located on the property; however, there is a wetland located on the east side of Pacific Highway South (99). The map also shows a wetland and stream located to the northeast of the property.



3.1.4 National Wetland Inventory

According to the National Wetland Inventory, there are no wetlands on or within 300-feet of the site.

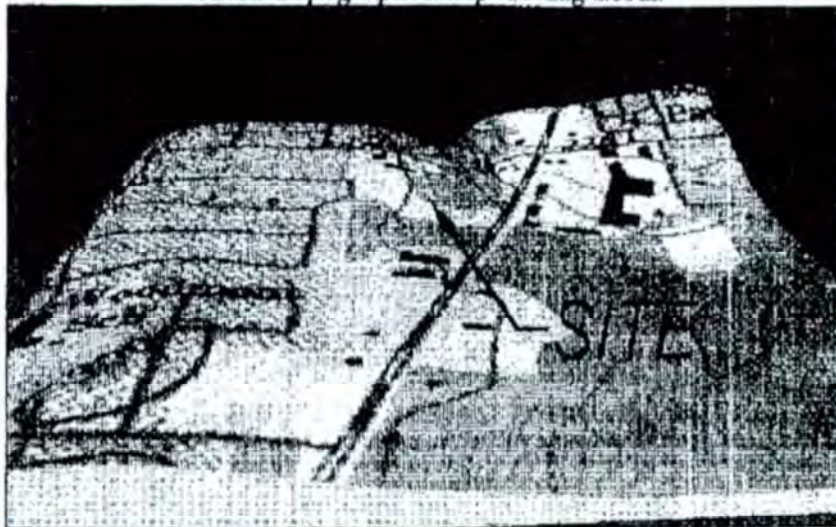
National Wetland Inventory



3.2 Topography

The site generally slopes to the east towards highway 99. The northern half of the property slopes gently to the east as the southern half of the property has more moderate slopes. A drainage ditch near the southern $\frac{1}{4}$ of the site drains to the east into a wetland before flowing into a ditch under highway 99.

USGS Topographic map: facing north



3.3 Uplands

Uplands on the site are both forested and open grass and shrub areas. Forested vegetation is dominantly Red alder (*Alnus rubra*) with a shrub underbrush comprised of Indian plum (*Oemleria cerasiformis*), red elderberry (*Sambucus racemosa*), Himalayan blackberry (*Rubus armeniacus*), evergreen black berry (*Rubus laciniatus*), trailing blackberry (*Rubus ursinus*), velvet grass (*Holcus lanatus*), dandelion (*Taraxacum officinale*), and Canadian thistle (*Cirsium arvense*).

Soil pits excavated within the uplands revealed a 16-inch gravelly, sandy loam layer with a color of 10YR 3/2. Soils within the upland were dry or moist during the time of our site visit.

3.4 Wetland A

Wetland A was flagged with pink "Wetland Delineation" flagging labeled A-1 through A-7 and AA-1 through AA-4. Wetland A is located along the eastern property boundary near Pacific Highway South. Wetland A appears to be a remnant of a larger wetland complex located on the east side of Pacific Highway South.

Wetland A is a 9,021 square foot (sf) scrub-shrub wetland drains into a culvert under Pacific Highway South into a stream located northeast of the property. Dominant vegetation include red osier dogwood (*Cornus sericea*), willow (*Salix sp.*), and Himalayan blackberry.

Soils pits excavated within the wetland revealed a 16-inch layer of sandy loam with a color of 10YR 3/1. Soil pits within the wetland were saturated within 12-inches of the soil surface during the time of our site visit.

According to the United States Fish and Wildlife Service (USFWS) wetland classification method (Cowardin et al.1979), Wetland A consists of areas that would be considered PSS1C (palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded).

According to the City of Des Moines Municipal Code (DMMC §18.04.663), Wetland A would be considered an "important wetland" due to its size (less than 1 acre), presence of one vegetation class, and the fact that it is not located within a stream corridor. Important wetlands typically have a 35-foot buffer measured from the wetland edge (§18.86.070). A 10-foot building setback line (BSBL) is measured from the buffer edge.

3.5 Wetland B

Wetland B was flagged with pink "Wetland Delineation" flagging labeled B-1 through B-13. Wetland B is located in the northeast property corner.

Wetland B is a 9,113sf forested and scrub-shrub wetland. Dominant vegetation includes black cottonwood (*Populus balsamifera*), red-osier dogwood, sitka willow (*Salix sitchensis*), red alder (*Alnus rubra*), hardhack (*Spiraea douglasii*), softrush (*Juncus effusus*), and creeping butter cup (*Ranunculus repens*).

Soil pits excavated within the wetland revealed a 16-inch layer of gravelly, sandy, loam with a color of 10YR 4/2 with common, medium, distinct redoximorphic features. Soils within the wetland were saturated within 12-inches of the soils surface during the time of our site visit.

According to the City of Des Moines Municipal Code (DMMC §18.04.663), Wetland B would be considered an "important wetland" due to its size (less than 1 acre), presence of

two vegetation class, and the fact that it is not located within a stream corridor. Important wetlands typically have a 35-foot buffer measured from the wetland edge (§18.86.070). A 10-foot building setback line (BSBL) is measured from the buffer edge. Wetland B has been historically degraded by the surrounding development of an access roads and parking lots. The majority of the wetland appears to have been historically disturbed and has been left in a degraded condition. Garbage has also been scattered throughout this wetland and the remainder of the site from through foot traffic to the adjacent communities.

4.0 REGULATIONS

In addition to the wetland regulations previously described for wetlands and streams, certain activities (filling and dredging) within "waters of the United States" may fall under the jurisdiction of the US Army Corps of Engineers (ACOE). The ACOE regulates all discharges into "waters of the United States" (wetlands) under Section 404(b) of the Clean Water Act.

Discharges (fills) into isolated and headwater wetlands up to 0.5 (1/2) acre are permitted under the Nationwide 39 Permit (NWP 39). However, discharges that result in over 0.1 (1/10th) acre of fill (and less than 0.5 acres) will require "Notification" and mitigation at a ratio of 1:1 (minimum). Washington State Department of Ecology has placed Regional Conditions on the Nationwide 39 permit that are more restrictive than the national regulations. The limits of fill can be modified if the agencies conclude that ESA fisheries could be impacted by the proposed wetland or stream fill activities.

Due to the increasing emphasis on Endangered Species Act compliance for all fills of Waters of the United State and Waters of the State, both the Corps of Engineers and Washington Department of Ecology should be contacted regarding permit conditions, compliance, and processing prior to commitment to any fill of wetlands or streams.

5.0 PROPOSED PROJECT AND CONCEPT MITIGATION

The proposed project is the development of plat with approximately 57 single family residence. The project proposes the fill of Wetland B in order to consolidate two degraded fragmented wetlands into one larger higher quality wetland. For fill of the 9,113sf wetland, 13,023sf of wetland will be created adjacent to Wetland A. In addition, all 9,021sf of Wetland A will be enhanced with native tree and shrub plantings and all invasive non-native species will be removed. In addition to the wetland creation and wetland enhancement the 35-foot buffer surrounding the creation area will be cleared of non-native invasive species and enhanced with native tree and shrub plantings. (DMMC §18.86.094(3) (Reasonable Use Exemption - other development proposals)) Once the conceptual mitigation plan is approved we will begin work on the final mitigation plan which will detail the plant species and locations, as well as the monitoring guidelines and installation process.

If you have any questions or need any additional information please contact our office at 253.859.0515 or by e-mail at aaron@b12assoc.com.

Sincerely,
B-12 Wetland Consulting, Inc.

J. Aaron Will

(electronic signature, .pdf)
J. Aaron Will
Wetland Scientist

File: A5-110_A5-106 Chamlian-Mitchell WA.pdf

Memo

To: Landmark Homes Attn: Mr. Larry King
From: Kurt W. Groesch PE
CC: DMP Inc. Attn: Alex, File
Date: March 30, 2006
Re: Storm Vault Lateral Pressure and Foundation Design Criteria, Landmarque Plat, Pacific Highway South, Des Moines, WA



Larry,

Attached please find test pit logs for 3 exploratory test pits excavated near the proposed location of the storm water vault for the above referenced project. We have also enclosed a Site plan depicting the test pit locations at the site. At your request, a representative from GeoResources LLC monitored the excavation of the 3 backhoe test pits at the storm tract for the project. The intent of these test pits was to evaluate the geotechnical feasibility of stormwater infiltration in lieu of the construction of the proposed stormwater vault. The test pits were excavated in the designated tract for the storm water vault. The test pits generally disclosed weathered glacial till over undisturbed very dense till soils. Wet soils, groundwater seepage and mottling or iron staining indicative of a fluctuating water level were encountered well above the proposed invert elevation of the infiltration system or gallery. Based on the soils encountered in the test pits, site conditions were not favorable for infiltration. However, the presence of the dense glacial soils at the proposed invert of the vault is favorable with respect to foundation support for the vault. The glacial till consisted of very dense silty gravelly sand with occasional cobbles, interpreted to be glacial till or "hardpan". No caving was encountered in the till, and only minor caving was exhibited in the weathered till.

It is likely that the wet soil conditions related to perched groundwater may occur intermittently at this site owing to the relatively impermeable nature of the silty till material. Perched ground water conditions typically occur at or near the contact of denser or finer underlying soils. The underlying soils impede the vertical infiltration of precipitation and result in localized areas of ground saturation. The ground surface was easily rutted by the passage of the excavator for the test pits. It should be noted that seasonal perched ground water conditions vary or may be altered with changes in precipitation, site utilization or other factors.

The foundation support for the storm water structure at the site may consist of conventional spread footings. We understand the vault foundations would penetrate the upper weathered deposits and bear wholly within the undisturbed, very dense till at a depth of 10 to 12-feet below ground surface. For structures which bear on dense to very dense native till soil, we recommend that they be supported on spread footings. In general, footings founded on the undisturbed dense native till soils anticipated at the vault foundation elevation may be designed using an allowable soil bearing pressure of 5,000 pounds per square foot (psf) for combined dead and long-term live loads, exclusive of the weight of the footing and any overlying backfill. These values may be increased by one-third for transient loads such as those induced by seismic events or wind loadings.

We recommend a minimum width of 24 inches for isolated footings and 18 inches for continuous wall footings. Any exterior-footing elements for ancillary structures should be embedded at least 18 inches below the lowest adjacent finished grade for frost protection. Structures supported in the upper weathered till should be designed to exert a lower bearing pressure. We recommend an allowable bearing pressure of 2,000 psf in the weathered till. We recommend that any disturbed soils in the footing excavations be removed, or if practical, recompacted prior to concrete placement. All foundation subgrades should be examined by a representative of our firm to verify adequate bearing surface preparation prior to placing concrete. Because the upper weathered soils are both silty and seasonally wet, care should be taken to protect foundation subgrade areas once they are excavated. A working surface of gravel or a "mud" mat of lean concrete would protect the footing subgrade areas from disturbance associated with form placement and the installation of reinforcing steel.

The retaining and/or vault walls can be supported on shallow footings founded on dense to very dense native soils, if properly prepared. Lateral loads on conventional retaining structures founded as described above may be resisted by friction on the base of the wall footings and as passive pressure on the sides of footings. We recommend using a coefficient of friction of 0.55 to calculate friction between the concrete and dense native soils or on structural fill. Passive pressure may be determined using an equivalent fluid weight of 350 pcf. This assumes that structural fill is placed against the sides of the footings, or that the footings are cut "neat" into the dense to very dense till soils. A safety factor of 1.5 should be applied to these values, for sliding and overturning.

The lateral active soil pressures acting on reinforced concrete retaining walls depend on the nature, density and configuration of the soil behind the wall. We recommend that walls supporting horizontal backfill be designed using an equivalent fluid density of 35 pcf for a level back-slope behind the wall. This pressure is based on backfill placed within 2 feet of the wall being compacted by hand-operated equipment to a density of 90 percent of the MDD and consisting of clean sand or sand and gravel. Walls restrained from minor movement by stiffness or roof diaphragms prior to backfilling (0.001 times the wall height) should be designed to resist "at-rest" pressures. We recommend an equivalent fluid pressure equal to 50 pounds per cubic foot be used to model at-rest conditions. The recommended pressure does not include the effects of surcharges from surface loads.

Adequate drainage behind any retaining structure is imperative. We recommend that a drainage system consisting of a minimum 18 inches of washed sand and gravel with less than 3 percent fines be placed along the back of the vault wall. In addition, a drainage collector system consisting of 4-inch perforated PVC pipe should be installed at the base of the vault wall to provide an outlet for any accumulated water. If drainage cannot be provided, the lateral pressures outlined above should be increased to account for the development of hydrostatic pressures. The drainage material should be capped at the ground surface with 1-foot of relatively impermeable soil or otherwise sealed.

Temporary cut slopes (foundation and utility excavations) may be necessary during grading operations. As a general guide, temporary slopes of 1.5 to 1 (horizontal to vertical) or flatter may be used for temporary cuts in the upper weathered soils. Temporary slopes of 1 to 1 or flatter may be used in the unweathered dense to very dense native silty sands and gravel (tills). These guidelines assume that all surface loads are kept at a minimum distance of at least one half the depth of the cut away from the top of the slope and that significant seepage is not present on the slope face. **Flatter cut slopes will be necessary should significant soil moisture or perched groundwater (seepage) occur.**

We trust this memo and attached test pit logs are sufficient for your needs. Should you have any questions, please call at your earliest convenience.

**TEST PIT LOGS
LANDMARQUE
Storm Water vault
Pacific Highway South
Des Moines, WA**

TEST PIT 1 - See Plan; Located in vault area east portion of site

Depth (ft.)	Soil Type	Description
0.0 - 0.5		Sod/Topsoil
0.5 - 4.5	SM	Grey Silt w sand occ. gravel w /organics (loose, wet)
4.5 - 5.0	SM	Grey Brown silty sand w/occ. Gravel (med. Dense , wet) mottled, Fe staining (weathered Till)
5.0 - 12.5	GP	Grey Brown silty sand w/occ. Gravel (Dense to very dense, wet) mottled, Fe staining (Till)

Moderate caving observed in upper 5-feet
Standing surface water at test pit location
Perched groundwater seepage observed @ 5-feet

TEST PIT 2 - See Plan; Located in vault area east portion of site

Depth (ft.)	Soil Type	Description
1.0 - 0.5		Sod/Topsoil
0.5- 4.5	SM	Grey Brown silty sand w/occ. Gravel (med. Dense , wet) mottled, Fe staining (weathered Till)
4.5 - 7.0	SM	Grey Brown silty sand w/occ. Gravel (Dense to very dense, wet) mottled, Fe staining (Till)

Moderate caving observed in upper 4.5-feet
Perched groundwater seepage observed @ 4.5-feet

TEST PIT 3 - See Plan; Located in vault area east portion of site

Depth (ft.)	Soil Type	Description
2.0 - -0.5		Sod/Topsoil
0.5- 4.5	SM	Grey Brown silty sand w/occ. Gravel (med. Dense , wet) mottled, Fe staining (weathered Till)
4.5 - 7.0	SM	Grey Brown silty sand w/occ. Gravel (Dense to very dense, wet) mottled, Fe staining (Till)

Moderate caving observed in upper 4.5-feet
Perched groundwater seepage observed @ 4.5-feet

06110

Preliminary Plat of: LANDMARQUE

a portion of
SW 1/4, NW 1/4, Sec. 28, Twp. 22 N., Rge. 4 E., W.M.
City of Des Moines, King County, Washington

S. 261ST PL.

S. 262ND PL.

S. 263RD PL.

S. 264TH PL.

20TH AVE. S.



LEGAL DESCRIPTIONS

PARCEL No. 282204-0067
THAT PORTION OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 28, TOWNSHIP 22 NORTH, RANGE 4 EAST, W.M., LYING WESTERLY OF STATE ROAD NO. 1, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER;
THENCE SOUTH 89°13'31" EAST ALONG THE NORTH LINE OF SAID SOUTH HALF A DISTANCE OF 480.0 FEET;
THENCE SOUTH 03°05'51" WEST A DISTANCE OF 180.03 FEET;
THENCE SOUTH 89°10'18" EAST A DISTANCE OF 186.58 FEET TO A POINT ON THE WESTERLY MARGIN OF PACIFIC HIGHWAY SOUTH (STATE ROAD NO. 1);
THENCE ALONG SAID WESTERLY MARGIN SOUTH 37°55'00" WEST A DISTANCE OF 134.36 FEET TO THE NORTH LINE OF THE SOUTH 37°55'00" WEST, AS MEASURED ALONG THE WEST LINE OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 28;
THENCE NORTH 89°10'18" WEST ALONG THE NORTH LINE OF SAID SOUTH 37°55'00" WEST A DISTANCE OF 180.78 FEET TO THE WEST LINE OF SAID SOUTH 37°55'00" WEST;
THENCE NORTH ALONG SAID WEST LINE 208.42 FEET, MORE OR LESS, TO THE POINT OF BEGINNING.

PARCEL No. 282204-0209
THE SOUTH 37°55'00" WEST, AS MEASURED ALONG THE WEST LINE OF THAT PORTION OF THAT PORTION OF TOWNSHIP 22 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON, LYING WESTERLY OF PACIFIC HIGHWAY SOUTH (SR-NO. 1) AND TRACT B, SECTION 18, TWP. 22 N., RGE. 4 E., W.M., WASHINGTON, EXCEPT THE FOLLOWING DESCRIBED PARCEL OF LAND:

BEGINNING AT THE SOUTHEAST CORNER OF SAID TRACT B;
THENCE NORTH 89°10'18" WEST ALONG THE SOUTH LINE THEREOF A DISTANCE OF 339.14 FEET;
THENCE NORTH 01°05'58" EAST PARALLEL WITH THE WEST LINE OF SAID TRACT B A DISTANCE OF 300.01 FEET;
THENCE SOUTH 89°10'18" EAST PARALLEL WITH THE SOUTH LINE OF SAID TRACT B A DISTANCE OF 401.01 FEET TO THE WESTERLY MARGIN OF SAID PACIFIC HIGHWAY SOUTH;
THENCE SOUTH 37°55'00" WEST ALONG SAID MARGIN A DISTANCE OF 271.36 FEET TO THE POINT OF BEGINNING.

(ALSO KNOWN AS LOT B OF BOUNDARY LINE ADJUSTMENT RECORDED UNDER RECORDING NUMBER 8711248013.)

PARCEL No. 282204-0233
THE WEST HALF OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 28, TOWNSHIP 22 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON, EXCEPT THE NORTH 280 FEET THEREOF, AND EXCEPT THE WEST 115 FEET OF THE SOUTH 100 FEET OF THE NORTH 480 FEET OF SAID WEST HALF.

LEY-MORROW-POBLETE, INC.
728 ALBUQUERQUE WAY NORTH
ALBUQUERQUE, WASHINGTON 98002
(253)333-2200 FAX: (253)333-2206

ND ENGINEERING - SURVEYING
LAND PLANNING

LANDMARK HOMES, INC.
P.O. BOX 26116, FEDERAL WAY, WASHINGTON 98003-3116
PHONE No. (253) 927-6116 (FAX) 927-4652

Preliminary Plat of
LANDMARQUE
SITE PLAN

DATE	27 FEB 06	BY	06110ppt11
PROJECT	PEM	SCALE	1"=60'
PROJECT	06110	DATE	27 FEB 06

13

LANDMARQUE
a portion of
A Portion of NE 1/4, SW 1/4, and
SW 1/4, NW 1/4, Sec. 28, Twp. 22 N., Rge. 4 E., W.M.
City of Des Moines, King County, Washington

A Portion of NE 1/4, SW 1/4, and SW 1/4, NW 1/4, Sec. 28, Twp. 22 N., Rge. 4 E., W.M. City of Des Moines, King County, Washington

[illegible]

WETLAND ANALYSIS

The wetland hydrology is analyzed in the following pages. In page 14, the time series for the on-site and off-site areas tributary to Tract F were generated. The summation of the two time series is the pre-developed runoff to Tract F. In page 15, the pre-developed peak flow rates for the different storm frequencies can be found at the bottom of the page. The time series for the developed condition and off-site areas, as well as, the summation of the two time series can be found in page 16. The post-development peak flow rates for the different frequency storms can be found at the bottom of page 17. A comparison of the results in pages 15 and 17 show that the peak flow rates are closely matched.

A comparison of pre-developed and post-developed time series can be found in page 18. A graph of the two time series can also be found in pages 19. The results in pages 18 and 19 shows that the two time-series are very closely matched, and that the difference does not exceed the allowable 10%, which indicates that the assumption made will adequately provide water to the wetland.

In order to closely match the pre-developed and post-developed wetland hydrology, we assumed that roof runoff from lots 27 through 42 as well as the entire lot 43, will drain into the wetland. Water quality facilities meeting the latest standards will have to be provided to lot 43 at the time of its development.

CREATE a new Time Series

Production of Runoff Time Series

Project Location : Sea-Tac
Computing Series : a:exon.tsf
Regional Scale Factor : 1.00
Data Type : Historic
Creating Hourly Time Series File
Loading Time Series File:C:\KC_SWDM\KC_DATA\STTF60H.rnf 50
Till Forest 6.18 acres Scaling Yr:50

Total Area : 6.18 acres
Peak Discharge: 0.416 CFS at 9:00 on Jan 9 in 1990
Storing Time Series File:a:exon.tsf 50

CREATE a new Time Series

Production of Runoff Time Series

Project Location : Sea-Tac
Computing Series : a:offsite.tsf
Regional Scale Factor : 1.00
Data Type : Historic
Creating Hourly Time Series File
Loading Time Series File:C:\KC_SWDM\KC_DATA\STTG60H.rnf 50
Till Grass 8.12 acres Scaling Yr:50
Loading Time Series File:C:\KC_SWDM\KC_DATA\STEI60H.rnf 50
Impervious 5.88 acres Adding Yr:50

Total Area : 14.00 acres
Peak Discharge: 4.02 CFS at 6:00 on Jan 9 in 1990
Storing Time Series File:a:offsite.tsf 50

ADD Time Series

Time Series Found in Memory:a:offsite.tsf :
Time Series Found in Memory:a:offsite.tsf :

Adding Time Series

Computing Series:a:exwet.tsf
Peak Flow Rate: 4.02 CFS at 6:00 on Jan 9 in 1990
Lag= 0.00 Factor: 1.00
Loading Time Series File:a:exon.tsf 50
Peak Flow Rate: 0.416 CFS at 9:00 on Jan 9 in 1990
Lag= 0.00 Factor: 1.00 Completed Yr:50
Peak Flow Rate: 4.39 CFS at 6:00 on Jan 9 in 1990
Storing Time Series File:a:exwet.tsf 50

Time Series addition complete

Flow Frequency Analysis
Time Series File:a:exwet.tsf
Project Location:Sea-Tac

LogPearson III Coefficients
Mean= 0.323 StdDev= 0.129
Skew= 0.436

---Annual Peak Flow Rates---
Flow Rate Rank Time of Peak
(CFS)

2.27	19	2/16/49 21:00
4.27	2	3/03/50 16:00
2.50	13	2/09/51 2:00
1.62	42	1/30/52 8:00
1.59	44	3/24/53 15:00
2.03	25	12/19/53 19:00
2.14	22	2/07/55 17:00
2.17	21	12/20/55 17:00
2.52	12	12/09/56 14:00
2.07	24	12/25/57 16:00
1.55	45	1/26/59 20:00
2.11	23	11/20/59 5:00
1.84	33	2/14/61 21:00
1.64	41	11/22/61 2:00
1.86	31	12/15/62 2:00
2.02	26	12/31/63 23:00
1.75	37	12/21/64 4:00
1.84	34	1/05/66 16:00
2.65	10	11/13/66 19:00
2.79	8	8/24/68 16:00
1.72	39	12/03/68 16:00
1.85	32	1/13/70 22:00
1.80	35	12/06/70 8:00
3.07	5	2/27/72 7:00
1.62	43	1/13/73 2:00
1.99	27	11/28/73 9:00
2.81	7	12/26/74 23:00
1.73	38	12/02/75 20:00
1.69	40	8/26/77 2:00
2.42	16	9/22/78 19:00
1.98	28	9/08/79 15:00
2.43	15	12/14/79 21:00
2.35	18	11/21/80 11:00
3.52	4	10/06/81 15:00
2.22	20	10/28/82 16:00
1.97	29	1/03/84 1:00
1.50	46	6/06/85 22:00
2.65	11	1/18/86 16:00
2.68	9	10/26/86 0:00
1.19	49	1/14/88 12:00
1.41	47	8/21/89 17:00
4.39	1	1/09/90 6:00
3.92	3	11/24/90 8:00
1.89	30	1/27/92 15:00
1.16	50	3/22/93 22:00
1.25	48	11/30/93 22:00
1.77	36	11/30/94 4:00
2.92	6	2/08/96 10:00
2.47	14	1/02/97 6:00
2.40	17	10/04/97 15:00

Computed Peaks
Computed Peaks
Computed Peaks
Computed Peaks
Computed Peaks
Computed Peaks
Computed Peaks

-----Flow Frequency Analysis-----
-- Peaks -- Rank Return Prob
(CFS) Period

4.39	1	89.50	0.989
4.27	2	32.13	0.969
3.92	3	19.58	0.949
3.52	4	14.08	0.929
3.07	5	10.99	0.909
2.92	6	9.01	0.889
2.81	7	7.64	0.869
2.79	8	6.63	0.849
2.68	9	5.86	0.829
2.65	10	5.24	0.809
2.65	11	4.75	0.789
2.52	12	4.34	0.769
2.50	13	3.99	0.749
2.47	14	3.70	0.729
2.43	15	3.44	0.709
2.42	16	3.22	0.690
2.40	17	3.03	0.670
2.35	18	2.85	0.650
2.27	19	2.70	0.630
2.22	20	2.56	0.610
2.17	21	2.44	0.590
2.14	22	2.32	0.570
2.11	23	2.22	0.550
2.07	24	2.13	0.530
2.03	25	2.04	0.510
2.02	26	1.96	0.490
1.99	27	1.89	0.470
1.98	28	1.82	0.450
1.97	29	1.75	0.430
1.89	30	1.70	0.410
1.86	31	1.64	0.390
1.85	32	1.59	0.370
1.84	33	1.54	0.350
1.84	34	1.49	0.330
1.80	35	1.45	0.310
1.77	36	1.41	0.291
1.75	37	1.37	0.271
1.73	38	1.33	0.251
1.72	39	1.30	0.231
1.69	40	1.27	0.211
1.64	41	1.24	0.191
1.62	42	1.21	0.171
1.62	43	1.18	0.151
1.59	44	1.15	0.131
1.55	45	1.12	0.111
1.50	46	1.10	0.091
1.41	47	1.08	0.071
1.25	48	1.05	0.051
1.19	49	1.03	0.031
1.16	50	1.01	0.011
4.61		100.00	0.990
4.14		50.00	0.980
3.69		25.00	0.960
3.11		10.00	0.900
3.00		8.00	0.875
2.68		5.00	0.800
2.06		2.00	0.500
1.67		1.30	0.231

CREATE a new Time Series

Production of Runoff Time Series

Project Location : Sea-Tac
Computing Series : a:devon.tsf
Regional Scale Factor : 1.00
Data Type : Historic
Creating Hourly Time Series File
Loading Time Series File:C:\KC_SWDM\KC_DATA\STEI60H.rnf 50
Impervious 0.80 acres Scaling Yr:50

Total Area : 0.80 acres
Peak Discharge: 0.329 CFS at 0:00 on Oct 6 in 1981
Storing Time Series File:a:devon.tsf 50

CREATE a new Time Series

Production of Runoff Time Series

Project Location : Sea-Tac
Computing Series : a:offsite.tsf
Regional Scale Factor : 1.00
Data Type : Historic
Creating Hourly Time Series File
Loading Time Series File:C:\KC_SWDM\KC_DATA\STTG60H.rnf 50
Till Grass 8.12 acres Scaling Yr:50
Loading Time Series File:C:\KC_SWDM\KC_DATA\STEI60H.rnf 50
Impervious 5.88 acres Adding Yr:50

Total Area : 14.00 acres
Peak Discharge: 4.02 CFS at 6:00 on Jan 9 in 1990
Storing Time Series File:a:offsite.tsf 50

ADD Time Series

Time Series Found in Memory:a:offsite.tsf :
Time Series Found in Memory:a:offsite.tsf :

Adding Time Series

Computing Series:a:devwet.tsf
Peak Flow Rate: 4.02 CFS at 6:00 on Jan 9 in 1990
Lag= 0.00 Factor: 1.00
Loading Time Series File:a:devon.tsf 50
Peak Flow Rate: 0.330 CFS at 0:00 on Oct 6 in 1981
Lag= 0.00 Factor: 1.00 Completed Yr:50
Peak Flow Rate: 4.35 CFS at 6:00 on Jan 9 in 1990
Storing Time Series File:a:devwet.tsf 50

Flow Frequency Analysis
Time Series File:a:devwet.tsf
Project Location:Sea-Tac

LogPearson III Coefficients
Mean= 0.344 StdDev= 0.122
Skew= 0.397

---Annual Peak Flow Rates---

Flow Rate (CFS)	Rank	Time of Peak
2.31	20	2/16/49 21:00
4.21	2	3/03/50 16:00
2.45	19	2/09/51 2:00
1.70	42	10/15/51 13:00
1.70	43	3/24/53 15:00
2.12	26	12/19/53 19:00
2.15	24	11/25/54 2:00
2.14	25	12/20/55 17:00
2.60	13	12/09/56 14:00
2.21	22	12/25/57 16:00
1.62	46	11/18/58 13:00
2.17	23	11/20/59 5:00
1.91	34	2/14/61 21:00
1.82	39	11/22/61 2:00
1.93	33	12/15/62 2:00
2.10	27	12/31/63 23:00
1.87	38	12/21/64 4:00
1.91	35	1/05/66 16:00
2.91	8	11/13/66 19:00
3.08	5	8/24/68 16:00
1.75	41	12/03/68 16:00
1.94	31	1/13/70 22:00
1.87	37	12/06/70 8:00
3.06	6	2/27/72 7:00
1.67	44	1/13/73 2:00
2.10	28	11/28/73 9:00
2.83	9	12/26/74 23:00
1.76	40	12/02/75 20:00
1.89	36	8/26/77 2:00
2.67	11	9/22/78 19:00
2.23	21	9/08/79 15:00
2.54	16	12/14/79 21:00
2.58	15	11/21/80 11:00
3.65	4	10/06/81 0:00
2.47	18	10/28/82 16:00
2.06	29	1/03/84 1:00
1.67	45	6/06/85 22:00
2.59	14	1/18/86 16:00
2.98	7	10/26/86 0:00
1.30	49	1/14/88 0:00
1.60	47	8/21/89 17:00
4.35	1	1/09/90 6:00
3.91	3	11/24/90 8:00
1.99	30	1/27/92 15:00
1.21	50	12/10/92 6:00
1.40	48	11/30/93 22:00
1.94	32	11/30/94 4:00
2.79	10	2/08/96 10:00
2.49	17	1/02/97 6:00
2.64	12	10/04/97 15:00

Computed Peaks
Computed Peaks
Computed Peaks
Computed Peaks
Computed Peaks
Computed Peaks
Computed Peaks
Computed Peaks

-----Flow Frequency Analysis-----

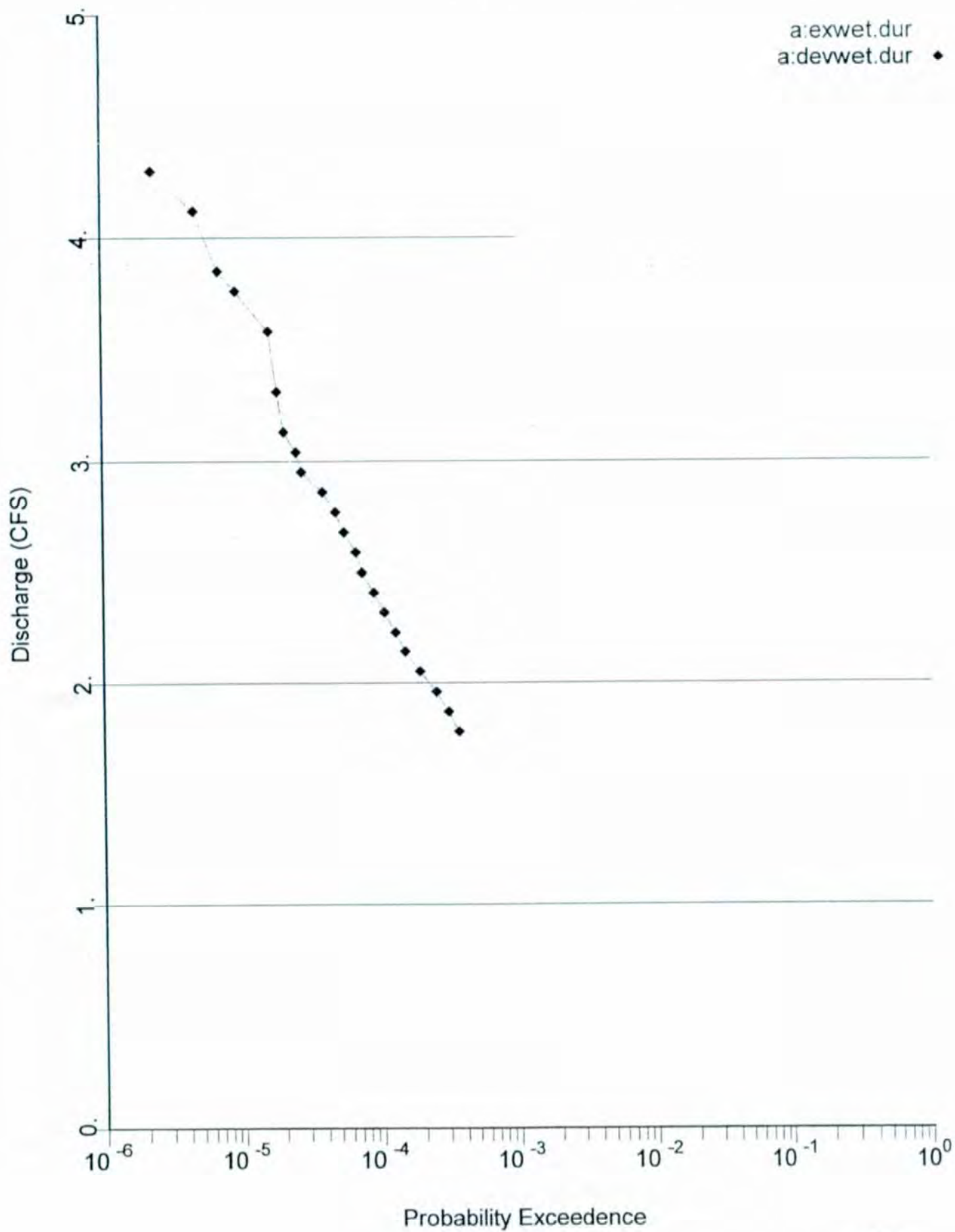
Peaks (CFS)	Rank	Return Period	Prob
4.35	1	89.50	0.989
4.21	2	32.13	0.969
3.91	3	19.58	0.949
3.65	4	14.08	0.929
3.08	5	10.99	0.909
3.06	6	9.01	0.889
2.98	7	7.64	0.869
2.91	8	6.63	0.849
2.83	9	5.86	0.829
2.79	10	5.24	0.809
2.67	11	4.75	0.789
2.64	12	4.34	0.769
2.60	13	3.99	0.749
2.59	14	3.70	0.729
2.58	15	3.44	0.709
2.54	16	3.22	0.690
2.49	17	3.03	0.670
2.47	18	2.85	0.650
2.45	19	2.70	0.630
2.31	20	2.56	0.610
2.23	21	2.44	0.590
2.21	22	2.32	0.570
2.17	23	2.22	0.550
2.15	24	2.13	0.530
2.14	25	2.04	0.510
2.12	26	1.96	0.490
2.10	27	1.89	0.470
2.10	28	1.82	0.450
2.06	29	1.75	0.430
1.99	30	1.70	0.410
1.94	31	1.64	0.390
1.94	32	1.59	0.370
1.93	33	1.54	0.350
1.91	34	1.49	0.330
1.91	35	1.45	0.310
1.89	36	1.41	0.291
1.87	37	1.37	0.271
1.87	38	1.33	0.251
1.82	39	1.30	0.231
1.76	40	1.27	0.211
1.75	41	1.24	0.191
1.70	42	1.21	0.171
1.70	43	1.18	0.151
1.67	44	1.15	0.131
1.67	45	1.12	0.111
1.62	46	1.10	0.091
1.60	47	1.08	0.071
1.40	48	1.05	0.051
1.30	49	1.03	0.031
1.21	50	1.01	0.011
4.59		100.00	0.990
4.16		50.00	0.980
3.74		25.00	0.960
3.19		10.00	0.900
3.08		8.00	0.875
2.77		5.00	0.800
2.17		2.00	0.500
1.78		1.30	0.231

Duration Comparison Analysis
 Base File: a:exwet.tsf
 New File: a:devwet.tsf
 Cutoff Units: Discharge in CFS

Cutoff	-----Fraction of Time-----			-----Check of Tolerance-----				
	Base	New	%Change	Probability	Base	New	%Change	
1.67	0.45E-03	0.46E-03	3.1	0.45E-03	1.67	1.67	0.4	
1.89	0.26E-03	0.29E-03	12.2	0.26E-03	1.89	1.93	1.9	
2.12	0.15E-03	0.16E-03	4.5	0.15E-03	2.12	2.13	0.7	
2.35	0.94E-04	0.10E-03	7.3	0.94E-04	2.35	2.41	2.5	
2.57	0.57E-04	0.71E-04	24.0	0.57E-04	2.57	2.67	3.8	
2.80	0.32E-04	0.43E-04	35.7	0.32E-04	2.80	2.91	4.0	
3.02	0.23E-04	0.25E-04	10.0	0.23E-04	3.02	3.08	1.9	
3.25	0.18E-04	0.18E-04	0.0	0.18E-04	3.25	3.36	3.3	
3.48	0.16E-04	0.16E-04	0.0	0.16E-04	3.48	3.63	4.5	
3.70	0.11E-04	0.91E-05	-20.0	0.11E-04	3.70	3.65	-1.4	
3.93	0.46E-05	0.46E-05	0.0	0.46E-05	3.93	4.21	7.0	
4.16	0.46E-05	0.46E-05	0.0	0.46E-05	4.16	4.21	1.2	
4.38	0.23E-05	0.00E+00	-100.0	0.23E-05	4.38	4.35	-0.8	

Maximum positive excursion = 0.304 cfs (9.1%)
 occurring at 3.33 cfs on the Base Data:a:exwet.tsf
 and at 3.63 cfs on the New Data:a:devwet.tsf

Maximum negative excursion = 0.110 cfs (-2.9%)
 occurring at 3.76 cfs on the Base Data:a:exwet.tsf
 and at 3.65 cfs on the New Data:a:devwet.tsf



SECTION VII
OTHER PERMITS

N/A

SECTION VIII

C.S.W.P.P. ANALYSIS AND DESIGN

TO BE ADDED

SECTION IX

**BOND QUANTITIES, FACILITY
SUMMARIES, AND DECLARATION
OF COVENANT**

TO BE COMPLETED

STORMWATER FACILITY SUMMARY SHEET

DDES Permit

Number _____

(provide one Stormwater Facility Summary Sheet per *Natural Discharge Location*)**Overview:**

Project Name

LANDMARQUE

Date _____

Downstream Drainage BasinsMajor Basin Name PUGET SOUNDImmediate Basin Name LOWER PUGET SOUND**Flow Control:**

Flow Control Facility Name/Number _____

Facility

Location _____

If none,

Flow control provided in regional/shared facility (give location) _____

No flow control required _____ Exemption number _____

General Facility Information:

Type/Number of detention facilities: Type/Number of infiltration facilities:

_____ ponds

_____ ponds

_____ vaults

_____ tanks

_____ tanks

_____ trenches

Control Structure Location _____

Type of Control Structure _____ Number of Orifices/Restrictions _____

Size of Orifice/Restriction:

No. 1 _____

No. 2 _____

No. 3 _____

No. 4 _____

Flow Control Performance Standard _____

Live Storage Volume _____ Depth _____ Volume Factor of Safety _____

Number of Acres Served _____

Number of Lots _____

Dam Safety Regulations (Washington State Department of Ecology)

Reservoir Volume above natural grade _____

Depth of Reservoir above natural grade _____

Facility Summary Sheet Sketch

All detention, infiltration and water quality facilities must include a detailed sketch.
(11"x17" reduced size plan sheets may be used)

Water Quality:**Type/Number of water quality facilities/BMPs:**

_____ biofiltration swale _____ sand filter (basic or large)
 (regular/wet/ or continuous inflow) _____ sand filter, linear (basic or
 large) _____ sand filter vault (basic or
 large) _____ combined detention/wetpond _____ sand bed depth _____ (inches)
 (wetpond portion basic or large) _____ stormwater wetland
 _____ combined detention/wetvault _____ storm filter
 _____ filter strip _____ wetpond (basic or large)
 _____ flow dispersion _____ wetvault
 _____ farm management plan _____ Is facility Lined?
 _____ landscape management plan If so, what marker is used
 _____ oil/water separator
 above _____
 (baffle or coalescing plate)
 Liner? _____

_____ catch basin inserts:
 Manufacturer _____
 _____ pre-settling pond
 _____ pre-settling structure:
 Manufacturer _____
 _____ high flow bypass structure (e.g., flow-splitter catch basin)
 _____ source controls

Design Information

Water Quality design flow _____
 Water Quality treated volume (sandfilter) _____
 Water Quality storage volume (wetpool) _____

Facility Summary Sheet Sketch

All detention, infiltration and water quality facilities must include a detailed sketch.
(11"x17" reduced size plan sheets may be used)

SECTION X

**OPERATIONS AND
MAINTENANCE MANUAL**

N/A

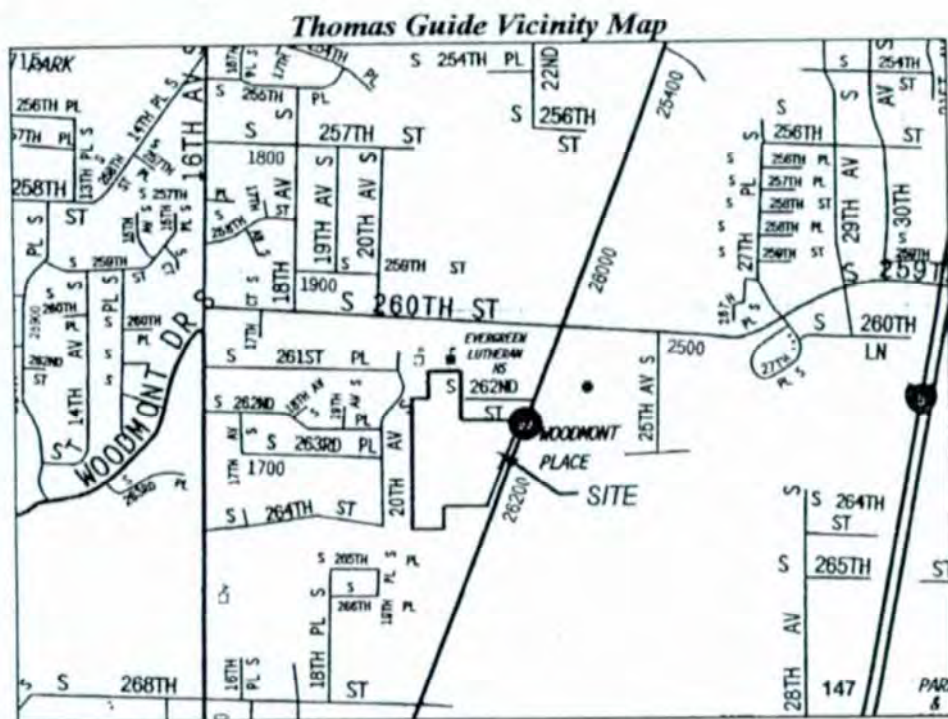


LANDMARQUE WETLAND ANALYSIS REPORT AND CONCEPT MITIGATION CITY OF DES MOINES, WASHINGTON

1.0 INTRODUCTION

1.1 Location

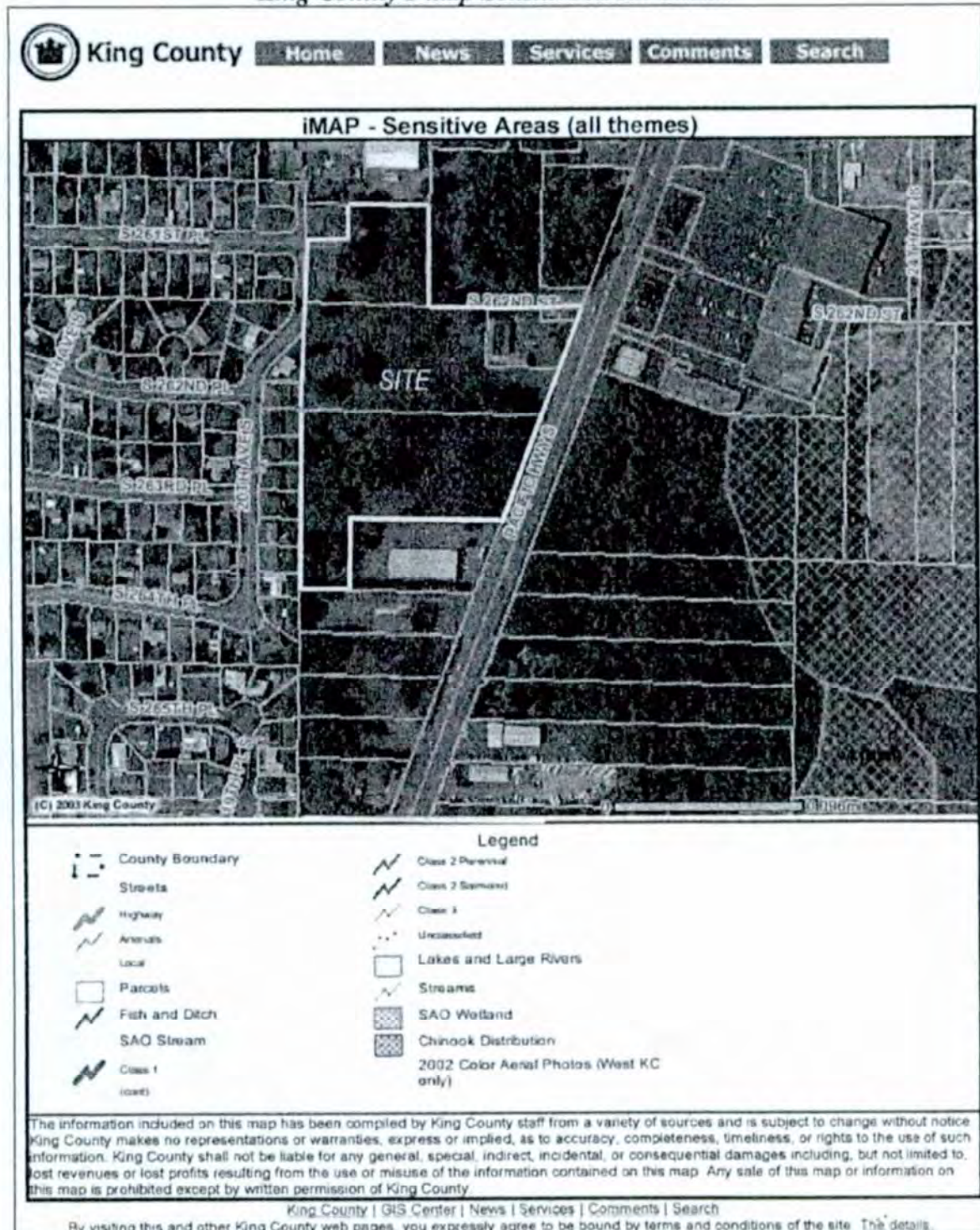
This report describes the jurisdictional wetlands located at the Chamlian – Mitchell Property. The 10.05 acre property is located west of Highway 99 and south of South 260th Street (parcels 2822049233, 2822049067, 2822049209) in the City of Des Moines, Washington.



1.2 Existing Conditions

The site is currently undeveloped land. Portions of the site are forested with deciduous trees and a shrub underbrush. The remainder of the site is low brush and grasses.

King County I-map Sensitive Areas Theme



2.0 METHODOLOGY

Sewall Wetland Consulting, Inc. inspected the site on May 31, 2005, June 15, 2005, and on June 21, 2005, for jurisdictional wetlands and streams using methodology described in the *Washington State Wetlands Identification Manual* (WADOE, March 1997). This is the methodology currently recognized by the City of Des Moines and the State of Washington for wetland determinations and delineations.

The *Washington State Wetlands Identification Manual* as well as the 1989 Federal Manual requires the use of the three-parameter approach in identifying and delineating wetlands. A wetland should support a predominance of hydrophytic vegetation, have hydric soils and display wetland hydrology. To be considered hydrophytic vegetation, over 50% of the dominant species in an area must have an indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL), according to the National List of Plant Species That Occur in Wetlands: Northwest (Region 9) (Reed, 1988). A hydric soil is "a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part." Anaerobic conditions are indicated in the field by soils with low chromas (2 or less), as determined by using the Munsell Soil Color Charts; iron oxide mottles; hydrogen sulfide odor and other indicators. Generally, wetland hydrology is defined by inundation or saturation to the surface for a consecutive period of 12.5% or greater of the growing season. Areas that contain indicators of wetland hydrology between 5%-12.5% of the growing season may or may not be wetlands depending upon other indicators. Field indicators include visual observation of soil inundation, saturation, oxidized rhizospheres, water marks on trees or other fixed objects, drift lines, etc. Under normal circumstances, indicators of all three parameters will be present in wetland areas. The wetland edges were flagged with pink "Wetland Delineation" flagging labeled consecutively "A-1, A-2..." The data points were marked with orange and black-striped flagging labeled DP #___. Flags were subsequently surveyed by DMP, Inc.

3.0 OBSERVATIONS

3.1 Existing Site Documentation

Prior to visiting the site, a review of several natural resource inventory maps was conducted. Resources reviewed included the King County Soil Survey, City of Des Moines Wetland Atlas, and the National Wetland Inventory.

3.1.1 King County Soil Survey

According to the King County Soil Survey, the site contains Alderwood gravelly, sandy loam (AgC); which typically occurs on slopes of 6-15 percent, and Everett gravelly, sandy loam (EvB); which typically occurs on slopes of 0-5 percent. Alderwood soils are moderately well-drained and formed under conifers in glacial deposits. Everett soils are somewhat excessively drained soils that formed in very gravelly glacial outwash deposits,

under conifers. According to the publication, "*Hydric Soils of the United States*" Alderwood and Everett soils are not considered to be *hydric* or wetland soils.

King County Soil Survey



3.1.3 City of Des Moines Surface Water Map

According to the City of Des Moines Surface Water Map, there are no wetlands or streams located on the property; however, there is a wetland located on the east side of Pacific Highway South (99). The map also shows a wetland and stream located to the northeast of the property. Per the City of Des Moines Planning Department this stream is identified as Massey Creek.



3.1.4 National Wetland Inventory

According to the National Wetland Inventory, there are no wetlands on or within 300-feet of the site.

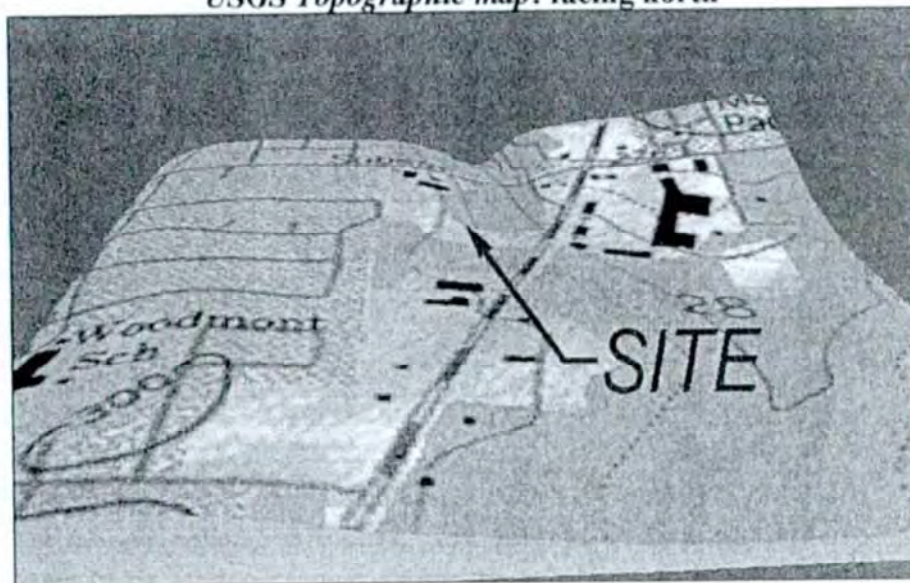
National Wetland Inventory



3.2 Topography

The site generally slopes to the east towards highway 99. The northern half of the property slopes gently to the east as the southern half of the property has more moderate slopes. A drainage ditch near the southern ¼ of the site drains to the east into a wetland before flowing into a ditch under highway 99.

USGS Topographic map: facing north



3.3 Uplands

Uplands on the site are both forested and open grass and shrub areas. Forested vegetation is dominantly Red alder (*Alnus rubra*) with a shrub underbrush comprised of Indian plum (*Oemleria cerasiformis*), red elderberry (*Sambucus racemosa*), Himalayan blackberry (*Rubus armeniacus*), evergreen black berry (*Rubus laciniatus*), trailing blackberry (*Rubus ursinus*), velvet grass (*Holcus lanatus*), dandelion (*Taraxacum officinale*), and Canadian thistle (*Cirsium arvense*).

Soil pits excavated within the uplands revealed a 16-inch gravelly, sandy loam layer with a color of 10YR 3/2. Soils within the upland were dry or moist during the time of our site visit.

3.4 Wetland A

Wetland A was flagged with pink "Wetland Delineation" flagging labeled A-1 through A-7 and AA-1 through AA-4. Wetland A is located along the eastern property boundary near Pacific Highway South. Wetland A appears to be a remnant of a larger wetland complex located on the east side of Pacific Highway South.

Wetland A is a 9,021 square foot (sf) scrub-shrub wetland which drains into a culvert under Pacific Highway South and subsequently connects to a stream located northeast of the property. This stream has been identified as Massey Creek. Dominant vegetation include red osier dogwood (*Cornus sericea*), willow (*Salix sp.*), and Himalayan blackberry.

Soils pits excavated within the wetland revealed a 16-inch layer of sandy loam with a color of 10YR 3/1. Soil pits within the wetland were saturated within 12-inches of the soil surface during the time of our site visit.

According to the United States Fish and Wildlife Service (USFWS) wetland classification method (Cowardin et al. 1979), Wetland A would be considered a PSS1C (palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded) wetland.

According to the City of Des Moines Municipal Code (DMMC §18.04.663), Wetland A would be considered an "important wetland" due to its size being 9,009sf, which is less than 1 acre, presence of one vegetation class (scrub-shrub), and the fact that it is not located within a stream corridor and does not meet the definition of a "Significant Wetland". Important wetlands typically have a 35-foot buffer measured from the wetland edge (§18.86.070). A 10-foot building setback line (BSBL) is measured from the buffer edge.

3.5 Wetland B

Wetland B was flagged with pink "Wetland Delineation" flagging labeled B-1 through B-13. Wetland B is located in the northeast property corner.

Wetland B is a 9,113sf forested and scrub-shrub wetland. Dominant vegetation includes black cottonwood (*Populus balsamifera*), red-osier dogwood, sitka willow (*Salix sitchensis*), red alder (*Alnus rubra*), hardhack (*Spiraea douglasii*), softrush (*Juncus effusus*), and creeping butter cup (*Ranunculus repens*).

Soil pits excavated within the wetland revealed a 16-inch layer of gravelly, sandy, loam with a color of 10YR 4/2 with common, medium, distinct redoximorphic features. Soils within the wetland were saturated within 12-inches of the soils surface during the time of our site visit.

According to the City of Des Moines Municipal Code (DMMC §18.04.663), Wetland B would be considered an "important wetland" due to its size of 9,113sf, which is less than 1 acre, presence of only two vegetation class, and the fact that it is not located within a stream corridor and does not meet the definition of a "Significant Wetland". Important wetlands typically have a 35-foot buffer measured from the wetland edge (§18.86.070). A 10-foot building setback line (BSBL) is measured from the buffer edge.

Wetland B has been historically degraded by the surrounding development of an access road and parking lot. The majority of the wetland appears to have been historically disturbed and has been left in a degraded condition. Garbage has also been scattered throughout this wetland and the remainder of the site from through foot traffic to the adjacent communities.

4.0 REGULATIONS

In addition to the wetland regulations previously described for wetlands and streams, certain activities (filling and dredging) within "waters of the United States" may fall under the jurisdiction of the US Army Corps of Engineers (ACOE). The ACOE regulates all discharges into "waters of the United States" (wetlands) under Section 404(b) of the Clean Water Act.

Discharges (fills) into isolated and headwater wetlands up to 0.5 (1/2) acre are permitted under the Nationwide 39 Permit (NWP 39). However, discharges that result in over 0.1 (1/10th) acre of fill (and less than 0.5 acres) will require "Notification" and mitigation at a ratio of 1:1 (minimum). Washington State Department of Ecology has placed Regional Conditions on the Nationwide 39 permit that are more restrictive than the national regulations. The limits of fill can be modified if the agencies conclude that ESA fisheries could be impacted by the proposed wetland or stream fill activities.

Due to the increasing emphasis on Endangered Species Act compliance for all fills of Waters of the United State and Waters of the State, both the Corps of Engineers and Washington Department of Ecology should be contacted regarding permit conditions, compliance, and processing prior to commitment to any fill of wetlands or streams.

5.0 PROPOSED PROJECT AND CONCEPT MITIGATION

The proposed project is the development of a plat with multiple single family residence. The project proposes the fill of Wetland B in order to consolidate two degraded fragmented wetlands into one larger higher quality wetland. For fill of the 9,113sf wetland, 9,119sf of wetland will be created adjacent to Wetland A. Wetland B (to be filled) meets the City of Des Moines definition of an "Important" wetland per DMMC §18.04.663 as described in section 3.5 of this report. As specified per City of Des Moines, Important wetlands are considered Class 3 wetlands, which corresponds to a 1:1 (created : filled) mitigation ratio as pursuant to DMMC §18.86.107. In addition, all 9,021sf of Wetland A will be enhanced with native tree and shrub plantings and all invasive non-native species will be removed. The 35-foot buffer surrounding the creation area and existing wetland area will be cleared of non-native invasive species and enhanced with native tree and shrub plantings. (DMMC §18.86.094(3) (Reasonable Use Exemption - other development proposals)) Once the conceptual mitigation plan is approved we will begin work on the final mitigation plan which will detail the plant species and locations, as well as the monitoring guidelines and installation process.

If you have any questions or need any additional information please contact our office at 253.859.0515 or by e-mail at awill@seawallwc.com.

Sincerely,
Sewall Wetland Consulting, Inc.

J. Aaron Will

(electronic signature, .pdf)

J. Aaron Will
Wetland Scientist

ROUTINE WETLAND DETERMINATION DATA FORM
(Washington State Wetlands Identification & Delineation Manual, 1997)

SEWALL WETLAND CONSULTING, INC.
1103 West Meeker Street
Kent, Washington 98032
(253) 859-0515

Project Name/#: Landmarque Project Date: 6-15-05 Investigator: Aaron Will Data Point: 1
Jurisdiction: City of Des Moines State: WA Atypical Analysis: No Problem Area: No

VEGETATION

Dominant plant species	Stratum	Indicator	Coverage %
1. <i>Spartina patens</i>	S1S	EAC+	
2. <i>Scirpus americanus</i>	S1S	FACW	
3. <i>Phragmites australis</i>	S1S	FACW	
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			

% of species OBL, FACW and/or FAC: 67% Hydrophytic vegetation criteria met: Yes No Marginal

Comments: _____

SOILS

Mapped Soil Series: Alderwood On Hydric Soils List?: Yes No Drainage Class: Moderately Well-drained

Depth (0 in)	Matrix color	Redox concentration color	Texture
12 in. <u>10 PR 311</u>		<u>few medium distinct</u>	<u>Sandy loam</u>
in. _____			
in. _____			
in. _____			

Organic soil , Histic epipedon , Hydrogen sulfide X, gleyed , redox concentrations X, redox depletions , pore linings , iron concretions , manganese concretions , organic matter in surface horizon (sandy soil) , organic streaking (sandy soils) , organic pan (sandy soil)

Hydric soil criteria met: Yes No Basis: 1st chrom

Comments: _____

HYDROLOGY

Recorded data , inundation , saturation X, watermarks , drift lines , sediment deposits , drainage patterns

Wetland hydrology criteria met: Yes No Basis: _____

Comments: _____

SUMMARY OF CRITERIA

Soil Temp. at 19.7" depth: _____ Growing Season? Y/N
Hydrophytic vegetation: Y/N Hydric soils: Y/N Wetland hydrology: Y/N
Data point meets the criteria of a jurisdictional wetland?: Yes No

ROUTINE WETLAND DETERMINATION DATA FORM
(Washington State Wetlands Identification & Delineation Manual, 1997)

SEWALL WETLAND CONSULTING, INC.
1103 West Meeker Street
Kent, Washington 98032
(253) 859-0515

Project Name/#: Landmarque Project Date: 6-15-05 Investigator: Aaron Will Data Point: 2
Jurisdiction: City of Des Moines State: WA Atypical Analysis: No Problem Area: No

VEGETATION

Dominant plant species	Stratum	Indicator	Coverage %
1. <i>Rubus armeniacus</i>	S/S	FACU	
2. <i>Rubus virginicus</i>	H	FACU	
3. <i>Alnus rubra</i>	T	FAC	
4. <i>Maianthemum dilatatum</i>	H	FAC	
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			

% of species OBL, FACW and/or FAC: 50% Hydrophytic vegetation criteria met: Yes ☒ No ☐ Marginal ☐
Comments: _____

SOILS

Mapped Soil Series: Alderwood On Hydric Soils List?: Yes ☒ No ☐ Drainage Class: Moderately Well-drained

Depth (0 in)	Matrix color	Redox concentration color	Texture
14 in. <u>10YR</u>	<u>3/3</u>		<u>gravelly sandy loam</u>
16 in. <u>10YR</u>	<u>5/2</u>	<u>many fine distinct</u>	<u>sandy loam</u>
in. _____			
in. _____			

Organic soil ☐ Histic epipedon ☐ Hydrogen sulfide ☐ gleyed ☐ redox concentrations ☒ redox depletions ☐ pore linings ☐ iron concretions ☐ manganese concretions ☐ organic matter in surface horizon (sandy soil) ☐ organic streaking (sandy soils) ☐ organic pan (sandy soil) ☐

Hydric soil criteria met: Yes ☒ No ☐ Basis: _____
Comments: _____

HYDROLOGY

Recorded data ☐ inundation ☐ saturation ☐ watermarks ☐ drift lines ☐ sediment deposits ☐ drainage patterns ☐
Wetland hydrology criteria met: Yes ☒ No ☐ Basis: Dry
Comments: _____

SUMMARY OF CRITERIA

Soil Temp. at 19.7" depth: _____ Growing Season?: ☒ N ☐
Hydrophytic vegetation: ☒ N ☐ Hydric soils: ☒ N ☐ Wetland hydrology: ☒ N ☐
Data point meets the criteria of a jurisdictional wetland?: Yes ☒ No ☐

DEVELOPMENT EXCEPTION CRITERIA

(DMMC § 18.86.094)

- (6) Previously Altered Environmentally Sensitive Areas. If any portion of an environmentally sensitive area has been altered from its natural state, the applicant may propose to develop within the altered area pursuant to the following:
- a. Procedure. The city shall process the proposed development exception through the office of the hearing examiner, or if the exception is proposed in conjunction with a development proposal requiring approval of the city council, the exception shall be processed together with that development proposal. The community development director shall serve as the applicable department director and the hearing examiner or city council shall serve as the hearing body.
 - b. Decision Criteria. The city shall approve or approve with modifications an application for a development exception within a previously altered environmentally sensitive area only if the applicant demonstrates that:
 - i. The environmentally sensitive area was lawfully altered in accordance with the provisions of this code and any state and federal laws at the time the alteration occurred;
 - ii. The alteration has significantly disrupted the natural functions of the environmentally sensitive area;
 - iii. The proposal utilizes to the maximum extent possible the best available construction, design, and development techniques which result in the least adverse impact on the environmentally sensitive area;
 - iv. The proposal incorporates the development standards of DMMC 18.86.070 through 18.86.087 and the surface water design manual to the maximum extent possible; and
 - v. The proposal is consistent with the purpose and intent of this chapter.