

ORDINANCE NO. 1658

AN ORDINANCE OF THE CITY OF DES MOINES, WASHINGTON amending the Comprehensive Transportation Plan for the City of Des Moines.

WHEREAS, the State's growth management act requires that agencies prepare a transportation plan that is directly tied to land use decisions and financial planning, and that plan must address growth and transportation planning for at least 10 years into the future, and

WHEREAS, the City's Comprehensive Transportation Plan was adopted in 2009 by Ordinance 1458, for the years 2009 through 2030.

WHEREAS, the mandates of the Growth Management Act and various changes in conditions and circumstances have necessitated the preparation and amendment of the Comprehensive Transportation Plan, and

WHEREAS, in mid-2015 the City authorized Fehr & Peers to prepare an amendment to the City's Comprehensive Transportation Plan that evaluated growth assumptions made in the 2009 Update for improving the transportation system of the City of Des Moines to ensure the system will meet existing and future travel needs, and to provide a reference resource for the development of elements of the City's Comprehensive Plan, and

WHEREAS, the Comprehensive Transportation Plan amendment review looked at projected household and employment growth out to 2035, and

WHEREAS, amendments to the Comprehensive Transportation Plan are consistent with the recently updated Des Moines Comprehensive Plan by identifying and prioritizing improvements to the transportation system and by identifying appropriate revenue sources, and

WHEREAS, based on the information presented, the City Council finds it to be in the public interest to amend the Comprehensive Transportation Plan, and that this Ordinance is appropriate and necessary; now therefore,

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

Sec. 1. The Comprehensive Transportation Plan adopted by Ordinance 1458 is hereby amended to incorporate the amendments included in the February 1, 2016 memorandum entitled "City of Des Moines - Update for the Comprehensive Transportation Element" (herein after 2015 Comprehensive Transportation Plan Amendments), attached to this Ordinance as Exhibit A. Not less than one (1) copy of the Des Moines Comprehensive Transportation Plan with the 2015 Comprehensive Transportation Plan Amendments, is to be filed in the office of the Des Moines City Clerk and is available for use and examination by the public.

Sec. 2. The Comprehensive Transportation Plan, as amended by this Ordinance, shall be reviewed annually in order to aid in the preparation of the City's six-year transportation improvement program and capital improvement plan.

Sec. 3. The Comprehensive Transportation Plan, as amended by this Ordinance, shall be used to update the goals, policies, and strategies of the Transportation Element of the Des Moines Comprehensive Plan during the next Comprehensive Plan amendment process.

Sec. 4. The capacity adding projects identified in the Comprehensive Transportation Plan, as amended by this Ordinance, shall be used as the basis for updating and re-calculation the City's Transportation Impact Fee rates, and other information contained in chapter 12.40 DMMC.

Sec. 5. Severability - Construction.

(1) If a section, subsection, paragraph, sentence, clause, or phrase of this Ordinance is declared unconstitutional or invalid for any reason by any court of competent jurisdiction; such decision shall not affect the validity of the remaining portions of this Ordinance.

(2) If the provisions of this Ordinance are found to be inconsistent with other provisions of the Des Moines Municipal Code, this Ordinance is deemed to control.

Sec. 6. Effective date. This Ordinance shall be in full force and effect thirty (30) days after its final passage by the Des Moines City Council in accordance to law.

PASSED BY the City Council of the City of Des Moines this 18th day of August, 2016 and signed in authentication thereof this 18th day of August, 2016.


MAYOR

APPROVED AS TO FORM:



Interim Assistant City Attorney

ATTEST:



City Clerk

Published: August 23, 2016

Effective Date: September 17, 2016



MEMORANDUM

Date: February 1st, 2016
To: Brandon Carver, Engineering Services Manager
From: Matt Palzkill and Ryan Abbotts
Subject: **City of Des Moines – Update for the Comprehensive Transportation Element**

SE15-0402

This memo documents the existing conditions of the transportation network in the City of Des Moines to support the City's Comprehensive Plan update.

TASK A: TRAFFIC COUNTS

Traffic counts were collected on Wednesday June 10, 2015 when school was in session; 17 turning movement counts and 15 tube counts were collected on a typical day in June 2015. This data was used to update the pertinent sections in the 2009 Comprehensive Transportation Plan (CTP), as summarized below.

TASK B: EXISTING CONDITIONS

DES MOINES TOMORROW - 2035

Table 2-2 provides the population and employment growth as provided by the City. Households are anticipated to increase by approximately 49%, compared to a previous estimate of 58%. Employment is anticipated to increase by approximately 136%, compared to a previous estimate of 133%. This is important to consider because it demonstrates that the future traffic growth provided and analyzed as part of the 2009 CTP would be similar provided the existing volumes were similar.

Table 2-2. Population and Employment Growth 2006 to 2035

YEAR	HOUSEHOLDS	EMPLOYMENT
2006	10,856	4,820
2035	16,145	11,360
Increase	5,289	6,540
% Increase	+ 49%	+ 136%

Source: City of Des Moines Model



EXISTING STREET NETWORK OPERATIONS

TRAFFIC VOLUMES

This section summarizes the updated weekday, AM peak hour, and PM peak hour volumes. The update focused on the PM peak hour locations because previously this was identified as the frame with the greatest vehicle delay. Where possible, count locations were matched to weekday and AM peak hour locations on previous CTP figures.

Weekday Volumes

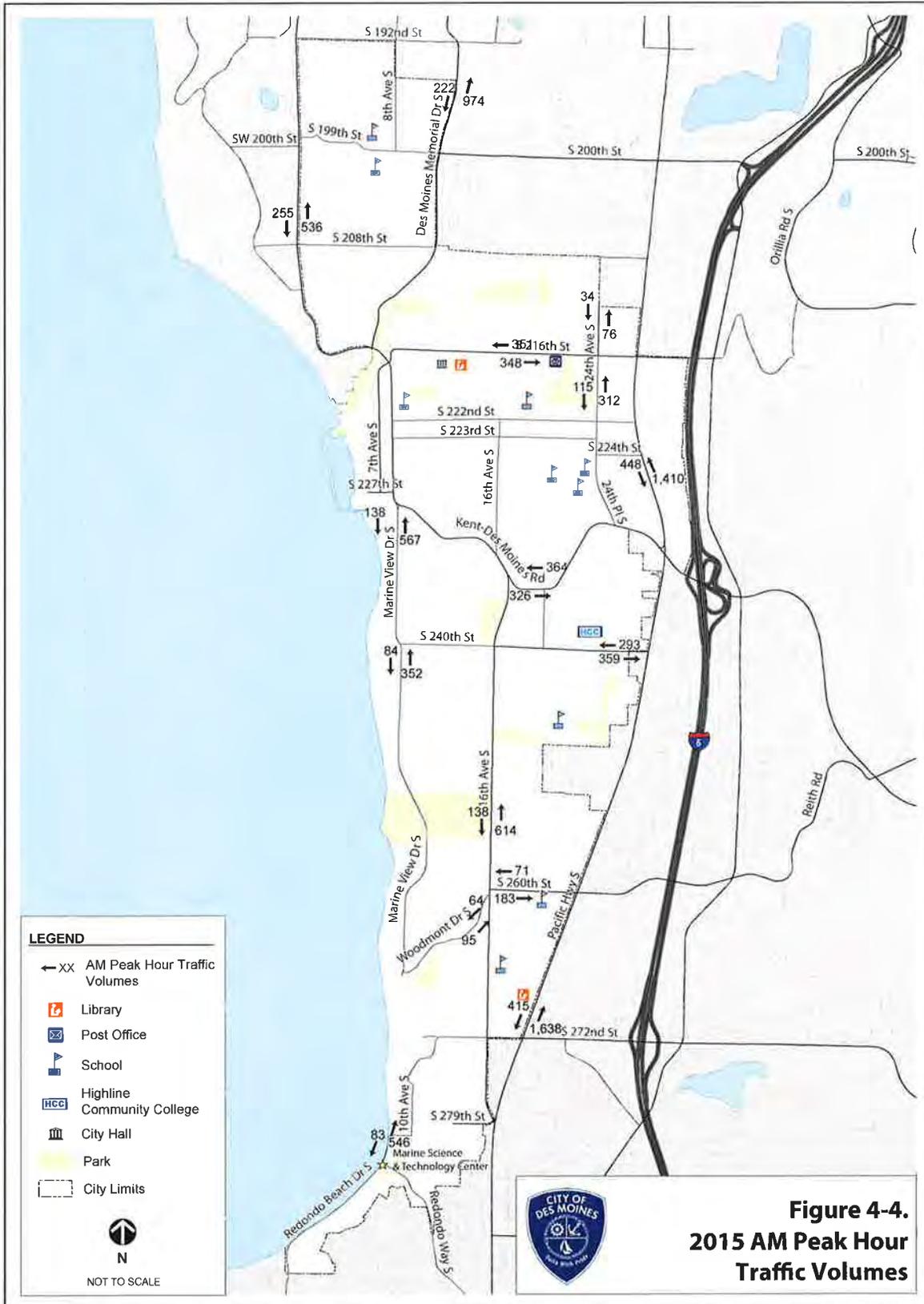
Table N-1 compares the 2008 and 2015 weekday traffic volumes and provides an annual growth change; **Figure 4-3** summarizes the 2015 weekday traffic volumes.

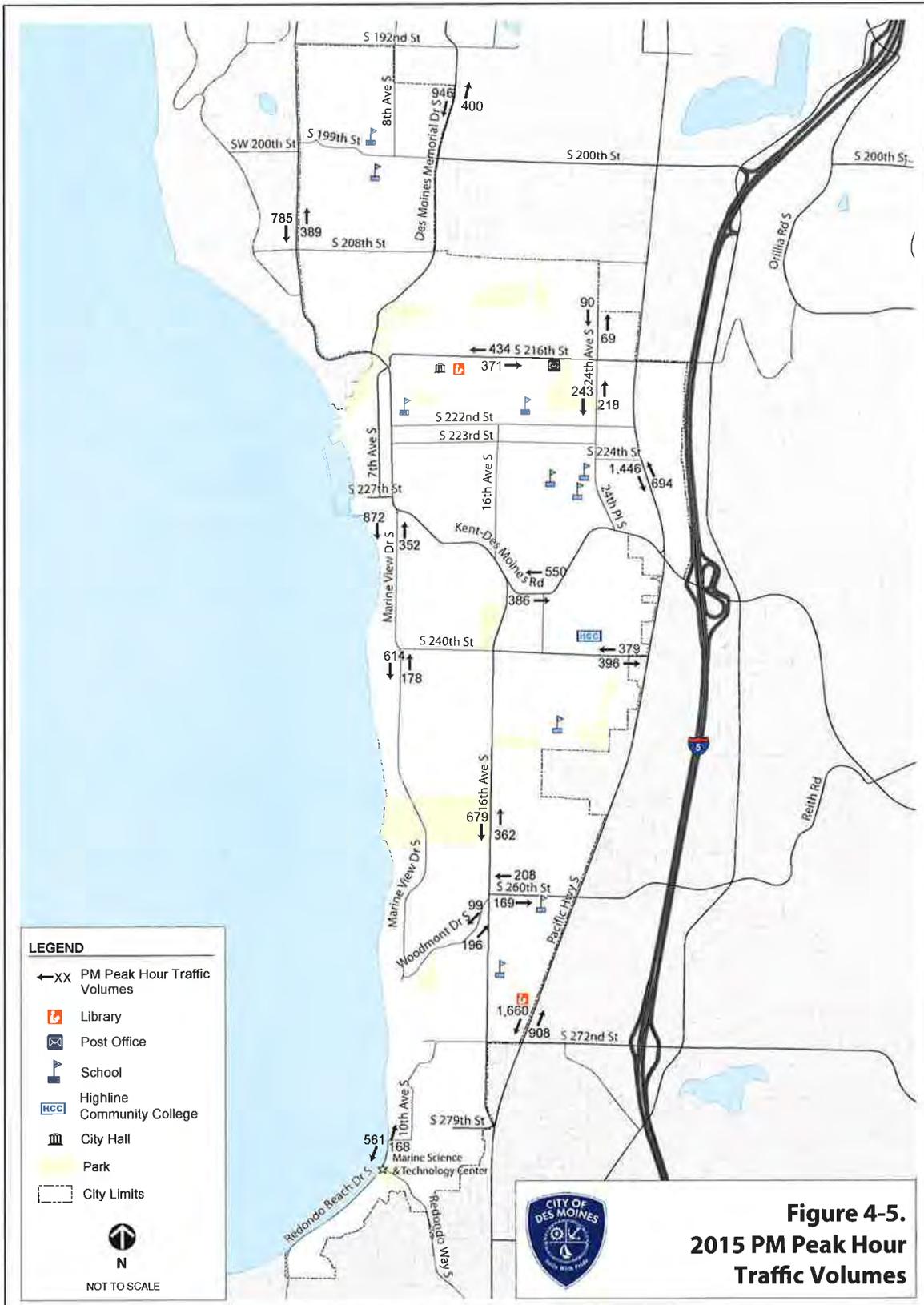
Table N-1: Tube Count Comparison

LOCATION	BETWEEN	VOLUMES		
		2015	2008	ANNUAL GROWTH
Des Moines Memorial Drive	194th St & 196th St	14,793		
1st Ave South	S 206th & S 208 th St	12,653	11,800	1.0%
S 216th St	14th Ave S & 20th Ave S	9,986	11,500	-2.0%
24th Ave S	S 208 th St & S 216th St	1,502		
24th Ave S	S 216 th St & S 200 th St	5,137	5,400	-0.7%
Pacific Hwy	S 224th St & S 226th St	28,378	30,500	-1.0%
Marine View Dr S	S 231st & S 232 nd St	12,399		
Marine View Dr S	S 240th & 242nd St	7,319	6,500	1.7%
Kent Des Moines Rd	16th Ave & 20th Ave S	12,238		
S 240th St	27th Ave S & 28th Ave S	11,314	11,400	-0.1%
16th Ave S	S 250th St & 14th PL S	11,049	8,600	3.6%
S 260th St	16th Ave S & 18th Ave S	4,121	3,300	3.2%
Woodmont Dr S	S 263rd Pl & 16th Ave S	2,918	3,100	-0.9%
Pacific Highway	S 268th St & S 272nd St	32,598		
Redondo Beach Dr	S 282nd St & S 181st St	8,739	8,600	0.2%

AM and PM Peak Hour Volumes

Figure 4-4 and **Figure 4-5** show AM and PM peak directional counts along roadway segments. In the locations in which 2015 directional counts could be compared to 2008 counts, the volumes were within an acceptable range.







STREET STANDARDS AND LEVEL SERVICE

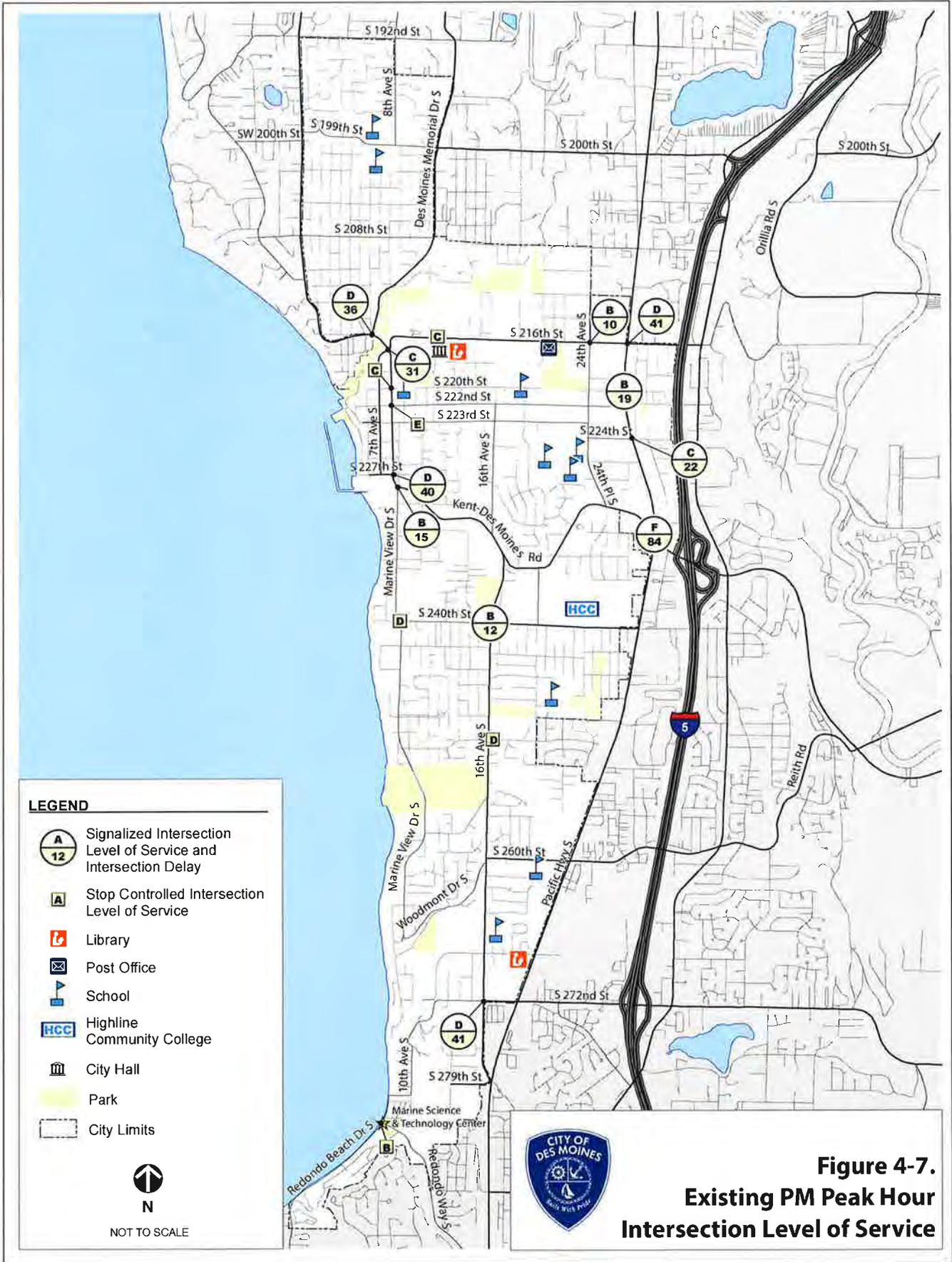
CITY LOS STANDARDS

PM Peak Hour Intersection LOS

The current intersection level of service standard, which is the amount of delay the city is willing to accept at an intersection, is level of service D. The only exceptions are intersections along major arterials and Downtown Des Moines as described in the CTP (page 4-15). **Table 4-4** provides the updated PM peak hour intersection level of service for 2015. Compared to the previous CTP, no intersections are failing the LOS standard. **Figure 4-7** summarizes the LOS and vehicle delay values at the study intersections.

**TABLE 4-4. PM PEAK HOUR INTERSECTION LOS – EXISTING
 2015**

ID	INTERSECTION	LOS STANDARD	LOS 2015	DELAY (SEC)
1	S 216th St/Pacific Highway S (SR 99)	F	D	41
2	S 220th St/Pacific Highway S (SR 99)	E	B	19
3	S 224th St/Pacific Highway S (SR 99)	E	C	22
4	SR 516 (Kent-Des Moines Rd)/Pacific Highway S (SR 99)	F	F	84
5	S 216th St/24th Ave S	D	B	10
6	SR 509 (Marine View Drive/S 216th Street)/Des Moines Memorial Dr	E	D	36
7	7th Ave S/Marine View Dr (SR 509)	E	C	31
8	S 227th St/Marine View Dr (SR 509)	E	D	40
9	Marine View Dr (SR 509)/8th Ave S	E	B	15
10	S 240th St/16th Ave S	D	B	12
11	S 272nd St/16th Ave S	D	D	41
12	S 216th St/11th Ave S	D	C	18
13	S 220th St/Marine View Dr (SR 509)	E	C	19
14	S 222nd St/Marine View Dr (SR 509)	E	E	38
15	S 240th St/Marine View Dr	D	D	29
16	Redondo Wy/Redondo Beach Dr	F	B	15
17	S 250th St/16th Ave	D	D	28



LEGEND

- Signalized Intersection Level of Service and Intersection Delay
- Stop Controlled Intersection Level of Service
- Library
- Post Office
- School
- Highline Community College
- City Hall
- Park
- City Limits



NOT TO SCALE



Figure 4-7.
Existing PM Peak Hour
Intersection Level of Service



CONFIRM GROWTH RATE

Table N-2 compares the 2008 and 2015 PM peak hour traffic volumes and provides an annual growth change. In total, the intersections experienced an annual growth of approximately 1.2% percent from 2008 to 2015.

TABLE N-2. TMC COMPARISON 2008 TO 2015

ID	LOCATION	2008	2015	ANNUAL %
		VOLUME	VOLUME	
1	S 216th St/Pacific Highway S (SR 99)	3,296	3,569	1.1%
2	S 220th St/Pacific Highway S (SR 99)	2,102	2,496	2.5%
3	S 224th St/Pacific Highway S (SR 99)	2,229	2,672	2.6%
4	SR 516 (Kent-Des Moines Rd)/Pacific Highway S (SR 99)	3,995	4,504	1.7%
5	S 216th St/24th Ave S	1,427	1,379	-0.5%
6	SR 509 (Marine View Drive/S 216th Street)/Des Moines Memorial Dr	2,205	2,499	1.8%
7	7th Ave S/Marine View Dr (SR 509)	2,447	2,774	1.8%
8	S 227th St/Marine View Dr (SR 509)	1,982	2,134	1.1%
9	Marine View Dr (SR 509)/8th Ave S	1,927	2,178	1.8%
10	S 240th St/16th Ave S	1,052	1,271	2.7%
11	S 272nd St/16th Ave S	1,640	1,747	0.9%
12	S 216th St/11th Ave S	825	837	0.2%
13	S 220th St/Marine View Dr (SR 509)	1,727	1,448	-2.5%
14	S 222nd St/Marine View Dr (SR 509)	1,739	1,517	-1.9%
15	S 240th St/Marine View Dr	1,096	1,216	1.5%
16	Redondo Wy/Redondo Beach Dr	854	872	0.3%
17	S 250th St/16th Ave	957	1,222	3.6%
		31,500	34,335	1.2%



FUTURE STREET NETWORK OPERATIONS

As shown in Table 2.2, the total households and employment for the City of Des Moines is anticipated to decreased compared to the assumptions of the 2009 *Comprehensive Transportation Plan*. The 2009 plan assumed X households and x employment, compared to 2015 employment of x and households of x. It is assumed that any growth in regional trips would be offset by the higher household and employment assessed in the previous plan and that its future analysis is still applicable.

RECOMMENDED STREET NETWORK FOR DES MOINES

New Street Improvements

Table 4-5 lists the recommended improvements. **Bold text** indicates added projects.

TABLE 4-5. BASELINE RECOMMENDED NETWORK IMPROVEMENTS

Project Type	Location	Project Description
Streets		
Arterial Widening Projects		
South 216th Street	Marine View Drive to Interstate 5	Widen to three lanes west of 19th Avenue South, to five lanes east of 19th Avenue South. Add bicycle lane, sidewalks and landscaping. Add signals and intersection improvements as warranted by development. See South 216th Corridor Study (March 2009).
24th Avenue South	South 208th Street to South 216th Street	Widen to five lanes with bicycle lane, sidewalks and landscaping. COMPLETED
24th Avenue South	South 216th Street to Kent-Des Moines Road	Widen to three lanes with bicycle lanes, sidewalks and landscaping. See 24th Avenue South Corridor Study (June 2009).
16th Avenue South	Kent-Des Moines Road to South 260th Street	Widen to three lanes with bicycle lanes, sidewalks and landscaping.
Kent-Des Moines Road	Marine View Drive to Pacific Highway South (SR 99)	Widen to three lanes west of 24th Avenue South and to five lanes east to Pacific Highway South with bicycle lanes, sidewalks and landscaping.
South 236th Lane	Highline College to Pacific Highway South	Widen to three lanes with bicycle lanes, sidewalks and landscaping.
Roadway Connections		
16th Avenue South	South 216th Street to South 220th Street	Two-lane roadway connection – collector arterial. See Highest and Best Use Analysis of Historic SR 509 Corridor Study (March 2009)."
16th Avenue South	South 276th Street to Pacific Highway South (SR 99)	Two-lane roadway connection/re-alignment – principal arterial.
20th Avenue South	South 242nd Street to South 244th Street	Two-lane roadway connection – neighborhood collector.



24th/28th Avenue South (SeaTac)	South 200th Street (SeaTac) to South 208th Street	Create a 4-lane to 5-lane connection to SeaTac. Coordinate with City of SeaTac and WSDOT as part of SR-509 project.
South 212 th Street	24 th Avenue South to SR-99	Create a 3-lane connection to SR-99 to serve adjacent industrial and commercial properties.
Intersections		
South 216th Street	Pacific Highway South	With SR 509 project: Add eastbound and westbound through lanes. Retain eastbound right turn lane. Change eastbound and westbound left turn signal phasing to protected. 2016 completion
South 220th Street	Pacific Highway South	Widen for left turn pockets, adjust roadway profile and approach grades, and revise signal phasing to remove split phases.
Des Moines Memorial Drive	at South 200th Street	Add left turn pockets for all approaches, modify signal. Joint project with City of SeaTac
Des Moines Memorial Drive	at Marine View Drive and South 216th Street	Lengthen approach lanes, coordinate signal with Marine View Drive at 7th Avenue South. Also consider roundabout option.
Marine View Drive	at South 227th Street	Revise lane configuration to single eastbound right with overlap phase. Add second southbound through lane.
Marine View Drive	at South 240th Street	Revise lane configuration, add westbound right turn pocket. Add signal or roundabout if warranted.
16th Avenue South	at South 240th Street	Complete left turn pockets for all approaches.
16th Avenue South	at South 250th Street	Add eastbound right turn pocket.
24th Avenue South	at South 222nd Street	Monitor operation for future signal or other intersection treatment.

RECOMMENDED FUNCTIONAL CLASSIFICATION

Figure 4-14 summarizes the changes recommended for street classifications; compared to the 2009 *Comprehensive Transportation Plan* the following changes were made:

- 16th Ave S realigned between S 216th St and S 220th St , and remained a new street link and Neighborhood Collector
- 24th Ave S between S216th St and S 208th St changed from future link to existing
- S 216th St between Pacific Highway S and 33rd Ave S no longer recommends a classification change to Principal Arterial, and instead remain a Minor Arterial
- S 216th St between Pacific Highway S and 20th Ave S is an existing Principal Arterial
- Added new Minor Arterial on S 212th St between 24th PI S and Pacific Hwy S





SAFETY AND EMERGENCY RESPONSE

CRASH ANALYSIS

Annual Crash Trends - Intersections

Table 4-8 provides a summary of intersection crashes and crash rates.

Table 4-8

Intersection	crashes (2011-2014)	crash rate (per million entering vehicles)
S 240th St/20th Ave S (U)	7	0.52
24th Ave S/S 216th St **	6	0.30
16th Ave S/S 272nd St***	12	0.47
Kent-Des Moines Rd/24th Ave S	9	0.34
16th Ave S/S 240th St	20	1.08
Kent-Des Moines Rd/I-5 On/Off Ramps (WSDOT)	35	0.59
Kent-Des Moines Rd/Marine View Drive	8	0.25
Kent-Des Moines Rd/30th Ave S (U) ****	5	0.08
Marine View Dr S/S 222nd St (U)	13	0.59
Marine View Dr S/S 223rd St	18	0.82
Kent-Des Moines Rd/16th Ave S	8	0.31
Marine View Dr S/Des Moines Memorial Dr S	9	0.25
Marine View Dr S/7th Ave S/7th Pl S	8	0.20

(U) = Stop-controlled intersection



FUTURE STREET SYSTEM RECOMMENDATIONS

Table 4-14. Recommended Street System Improvements

Project Type	Location	Project Description	Capacity	Safety	Operations	Development	Multimodal
Streets							
Arterial Widening Projects							
South 216th Street	11 th Avenue South to 18 th Avenue South	Widen to three lanes. Add bicycle lane, sidewalks and landscaping. Add signals and intersection improvements as warranted by development. See South 216th Corridor Study (March 2009).	X	X	X	X	X
24th Avenue South	South 216th Street to Kent-Des Moines Road	Widen to three lanes with bicycle lanes, sidewalks and landscaping. See 24th Avenue South Corridor Study (June 2009).	X	X		X	X
16th Avenue South	Kent-Des Moines Road to South 260th Street	Widen to three lanes with bicycle lanes, sidewalks and landscaping.	X	X	X	X	X
Kent-Des Moines Road	Marine View Drive to Pacific Highway South (SR 99)	Widen to three lanes west of 24th Avenue South and to five lanes east to Pacific Highway South with bicycle lanes, sidewalks and landscaping.	X	X	X		X
South 236 th Lane	Highline College to Pacific Highway South	Widen to three lanes with bicycle lanes, sidewalks, and landscaping	X		X	X	X
Roadway Connections							
16th Avenue South	South 216th Street to South 220th Street	Two-lane roadway connection – collector arterial. See Highest and Best Use Analysis of Historic SR 509 Corridor Study (March 2009)			X	X	
16th Avenue South	South 276th Street to Pacific Highway South (SR 99)	Two-lane roadway connection/re-alignment – principal arterial.			X	X	
20th Avenue South	South 242nd Street to South 244th Street	Two-lane roadway connection – neighborhood collector.			X	X	



Project Type	Location	Project Description	Capacity	Safety	Operations	Development	Multimodal
24th/28th Avenue South (SeaTac)	South 200th Street (SeaTac) to South 208th Street	Create a 4-lane to 5-lane connection to SeaTac. Coordinate with City of SeaTac and WSDOT as part of SR-509 project.	X		X	X	X
South 212 th Street	24 th Avenue South to Pacific Highway South	Create a 3-lane connection to SR-99 to serve adjacent industrial and commercial properties.	X		X	X	
Intersections							
South 216th Street	Pacific Highway South	With SR 509 project: Add eastbound and westbound through lanes. Retain eastbound right turn lane. Change eastbound and westbound left turn signal phasing to protected.	X		X	X	
South 220th Street	Pacific Highway South	Widen for left turn pockets, adjust roadway profile and approach grades, and revise signal phasing to remove split phases.	X		X	X	
Des Moines Memorial Drive	at South 200th Street	Add left turn pockets for all approaches, modify signal. Joint project with City of SeaTac.	X	X	X		
Des Moines Memorial Drive	at Marine View Drive and South 216th Street	Lengthen approach lanes, coordinate signal with Marine View Drive at 7th Avenue South. Also consider roundabout option.	X		X		
Marine View Drive	at South 227th Street	Revise lane configuration to single eastbound right with overlap phase. Add second southbound through lane.	X	X	X		
Marine View Drive	at South 240th Street	Revise lane configuration, add westbound right turn pocket. Add signal or roundabout if warranted.	X		X		
16th Avenue South	at South 240th Street	Complete left turn pockets for all approaches.	X	X	X		
16th Avenue South	at South 250th Street	Add eastbound right turn pocket.	X		X		



Project Type	Location	Project Description	Capacity	Safety	Operations	Development	Multimodal
24th Avenue South	at South 222nd Street	Monitor operation for future signal or other intersection treatment	X		X		
Safety & Operations							
8th Avenue South	at South 200th Street	Monitor operation for possible future signal or other treatment		X	X		
Des Moines Memorial Drive South	at South 208th Street	Add left turn pockets.		X	X		
Des Moines Memorial Drive South	at South 212th Street	Add left turn pockets.		X	X		
Marine View Drive/7th Avenue South	at South 216th Street	Optimize signal timing and coordinate with Des Moines Memorial Drive/Marine View Drive Intersection.		X			
South 216th Street	at Pacific Highway South	Add red light camera enforcement.		X			
Pacific Highway South	at South 224th Street	Change westbound left turn phasing to protected- only.		X			
South 240th Street	at 20th Avenue South	Widen to provide two-way left-turn lane/ refuge pocket along segment. Widen to provide left turn lane at intersection.-Install traffic signal if warranted.		X	X		
South 240th Street (Kent)	at Pacific Highway South	Add dual left turn for eastbound approach, revise signal phasing. Coordinate with City of Kent.	X		X	X	
South 260th Street (Kent)	at Pacific Highway South	Monitor safety and coordinate with City of Kent		X			X
South 272nd Street	east of 16th Avenue South	Implement access control at development driveway access.		X	X	X	
Kent-Des Moines Road	at Pacific Highway South	Improve vehicle detection and signal timing. Carry lane markings through intersection to better define channelization. Add red light camera enforcement.		X	X		
Redondo Beach Drive South	at Redondo Way S	Monitor operation for possible future signal or other treatment		X	X		
System Preservation and Management							
Downtown Circulation Study	Downtown	Develop plan to maximize multi-modal use, pedestrian access and traffic operations.	X	X	X		X



Project Type	Location	Project Description	Capacity	Safety	Operations	Development	Multimodal
Marine View Drive South	Des Moines Memorial Drive to Kent-Des Moines Road	Fiber optic signal interconnect.	X		X		
Pavement Management Program	Citywide	Increase funding program for improvements.		X	X		
Traffic Management Center	Public Works	Communication and coordination with WSDOT and King County Traffic Management Centers.	X	X	X		
Traffic Calming Program	Citywide	Fund annual program for improvements.		X	X		
Parking Management Plan	Downtown, Redondo and HC areas	Develop parking management strategy and apply program and actions.		X	X		
ITS Plan	Arterial Streets	Develop and implement an ITS Plan for City arterials.			X		
Sign and Signal Upgrades	Citywide	Continue to improve signs and traffic signals to meet MUTCD standards.	X	X	X		X



TASK C: POLICY UPDATE

This section includes a brief description of potential policy updates for a Special Needs Policy and Multimodal Concurrency.

SPECIAL NEEDS POLICY

The following text is recommended to be included as part of Chapter 5, *Other Recommended Bicycling Programs and Policies for the City to Consider*.

Cities must provide accommodation for all users, and some groups have specific challenges that warrant special attention. The Americans with Disabilities Act of 1990 specifies guidelines for accommodating persons with disabilities, but many cities wish to go beyond this one group. Disadvantaged and vulnerable populations can also be based on status of race, religion, income, gender, language, or other characteristics.

PSRC Multicounty Planning Policy T-25 states:

“Ensure mobility choices for people with special transportation needs, including persons with disabilities, the elderly, the young, and low-income populations.”

A draft policy for Des Moines would be:

“Transportation facilities and infrastructure inherently affect the natural environment and character of neighborhoods. As such, Tacoma recognizes the importance of evaluating transportation projects using objective criteria to reflect community standards (including environmental justice considerations) and align with project analysis for regional and federal grant funding. The environmental justice approach strives to avoid decisions that can have a disproportionate adverse effect on the environmental and human health of traditionally underserved neighborhoods and vulnerable populations compared to the population as a whole.

These populations may be based on status of religion, color, national origin or ancestry, political affiliation, sex, gender identity, sexual orientation, age, familial status, income, English proficiency, honorably discharged veteran or military status, or the presence of any sensory, mental, or physical handicap, as laid out in Council Resolution 38950. The possible adverse effects of transportation projects may include, but are not limited to, disruptions in community cohesion, restricted access or mobility, safety concerns, higher exposure to hazardous materials, raised noise levels, and increased water and air pollution.”

RECOMMENDATION

Consider appending the following to Chapter 5; also consider “Special Needs of Transportation Users” as new policy TR 5.11 and “Equity in Transportation” as new policy TR 7.10

SPECIAL NEEDS OF TRANSPORTATION USERS

Recognize and accommodate the special transportation needs of the elderly, children, and persons with disabilities in all aspects of transportation planning, programming, and



implementation. Satisfy the community's desire for a high level of accommodation for persons with disabilities using local, state, or federal design standards.

EQUITY IN TRANSPORTATION

Support the transportation needs of traditionally underserved neighborhoods and vulnerable populations, through investment in equitable modes of transportation and equal spending throughout the City, in addition to potential catch-up investment for areas in need as necessary.

MULTI-MODAL CONCURRENCY POLICY FOR BICYCLES, PEDESTRIANS, AND TRANSIT

Multi-modal concurrency involves applying level of service standards to the transportation modes that make up a significant portion of travel in communities, but have not traditionally been measured at the same level as automobiles. These standards are typically known as multimodal level of service (MMLOS). The central Puget Sound region's Multicounty Planning Policies require local jurisdictions to "address non-motorized, pedestrian, and other multimodal types of transportation options in concurrency programs – both in assessment and mitigation."

Cities do have flexibility to decide how they will address all modes. Many communities meet this requirement by identifying priority networks or areas for each mode and applying a level of service standard that will meet the community's needs over time. Oftentimes places like town centers would benefit from investments in pedestrian facilities and transit amenities. Outlying neighborhoods, however, may not require the same level of infrastructure. In this way, cities can design their multimodal level of service standards to help reach the vision for their community.

RECOMMENDATION

Consider appending the following multimodal LOS policies to TR 3.1:

Consider adopting a facility completeness measure as described in the following pedestrian, bicycling, and transit priority areas level of service tables.

Pedestrian Priority Area Level of Service (LOS)

WITHIN PEDESTRIAN PRIORITY NETWORK	
	Sidewalk provided on both sides of the road*
	Sidewalk or wide shoulder provided on one side of the road
	No pedestrian facility provided



Bicycle Priority Area Level of Service (LOS)

WITHIN BICYCLE PRIORITY NETWORK	
	Provides minimum treatment* recommendation, as shown within the Bicycle Priority Network
	Provides a lower-level facility than recommend in the Bicycle Priority Network
	No bicycle facility or signage

Transit Level of Service (LOS)

TRANSIT STOP AMENITIES	
	More than 80% of transit stops meet amenity minimum provisions
	More than 60% of transit stops meet amenity minimum provisions
	Less than 60% of transit stops meet amenity minimum provisions



TASK D: NON-MOTORIZED AND TRANSIT UPDATE

EXISTING PEDESTRIAN FACILITIES AND PROGRAMS & HIGH PRIORITY NETWORK PROCESS

Figure 5-1: Existing Sidewalks

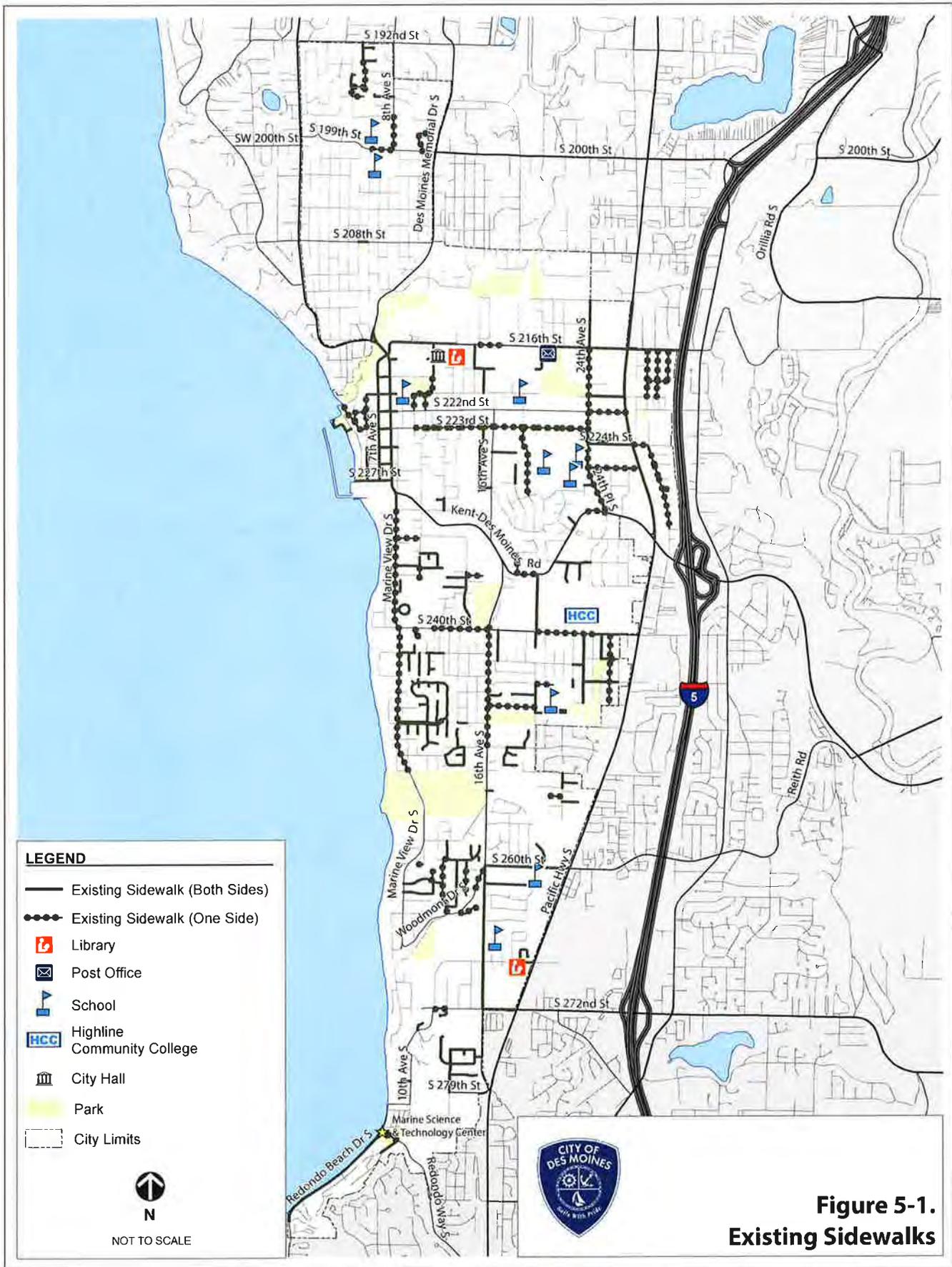
Figure 5-1a: Missing Sidewalks

SIDEWALK IMPROVEMENT PROJECTS

TABLE 5-1: PRIORITY PEDESTRIAN NETWORK PROJECTS

Location	Limits	Centerline Miles
Downtown Commercial Streets	6th Avenue South, East-West cross streets	0.85
South 199th and South 200th Street	1st Avenue South to Des Moines Memorial Drive	0.74
8th Avenue South	South 194th Street to South 208th Street	0.86
South 208th Street	1st Avenue South to Des Moines Memorial Drive	0.7
South 222nd Street	Marine View Drive to 24th Avenue South	1.04
South 223rd Street	Marine View Drive to 24th Avenue South	1.04
South 220th Street	11th Avenue South to 16th Avenue South	0.48
9th Avenue South	South 220th Street to Kent-Des Moines Road	0.23
10th Avenue South	South 220th Street to Kent-Des Moines Road	0.61
16th Avenue South	South 220th Street to Kent-Des Moines Road	0.78
Marine View Drive	South 250th Street to Woodmont Drive South	1.05
Woodmont Drive South	Marine View Drive to 16th Avenue South	0.65
S 272nd Street and 10th Avenue South	16th Avenue South to Redondo Beach Drive	1.09
Redondo Beach Drive	Sidewalk to South City Limits	0.16

Figure 5-3: Recommended Improvements to the Priority Pedestrian Network



LEGEND

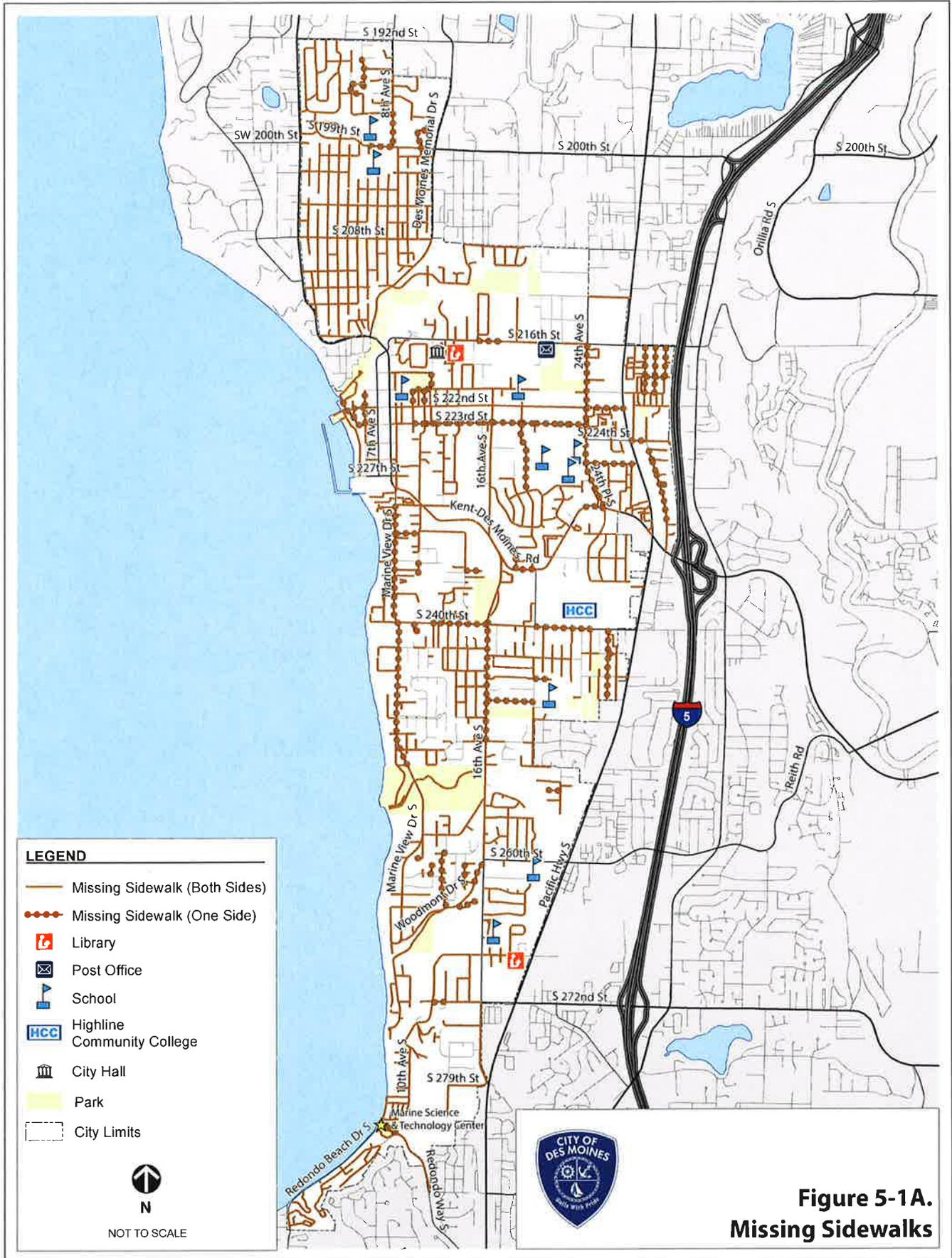
- Existing Sidewalk (Both Sides)
- Existing Sidewalk (One Side)
- Library
- Post Office
- School
- Highline Community College
- City Hall
- Park
- - - City Limits



NOT TO SCALE



**Figure 5-1.
Existing Sidewalks**



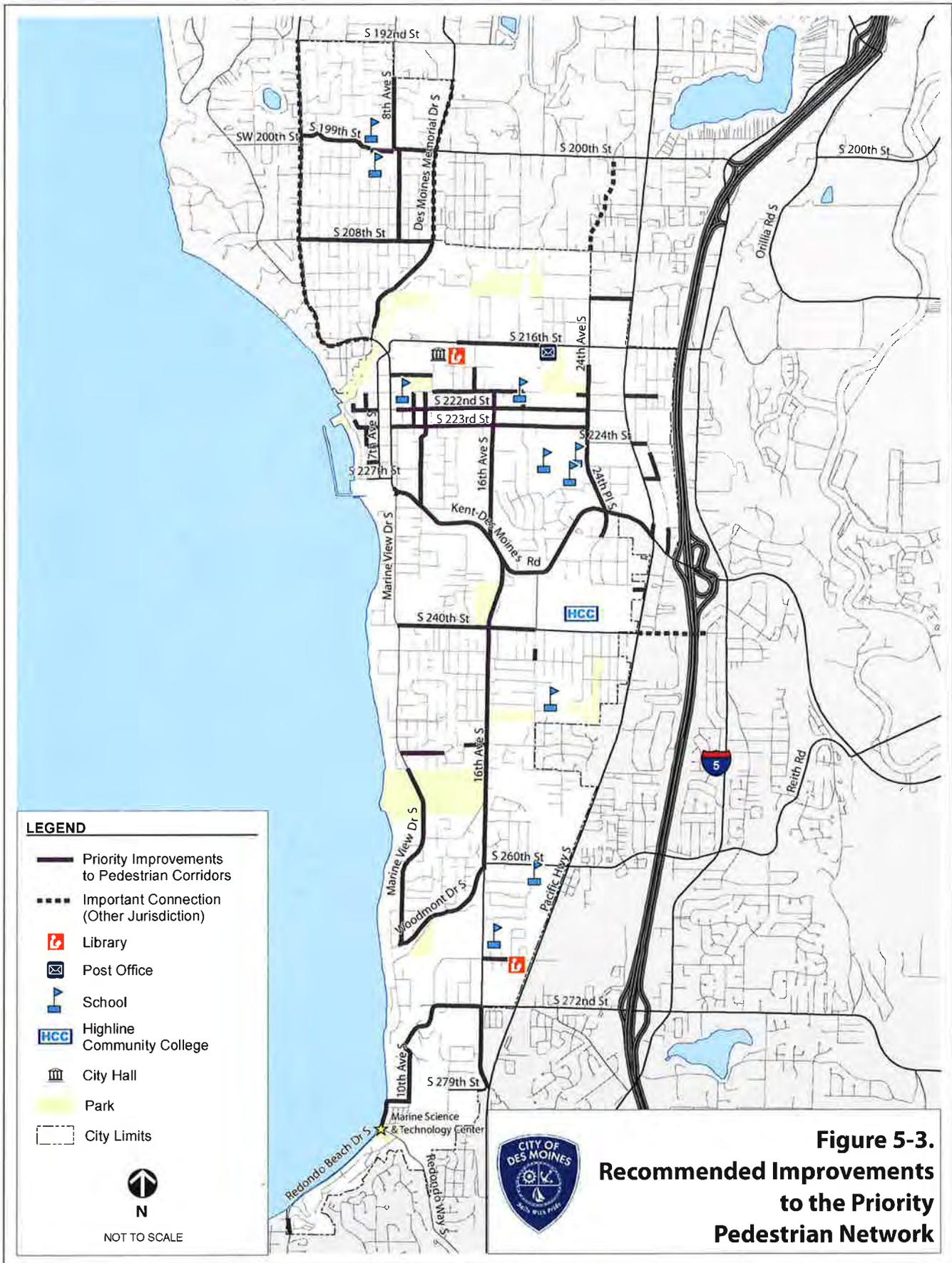


Figure 5-3.
Recommended Improvements
to the Priority
Pedestrian Network



RECOMMENDED BIKEWAY NETWORK

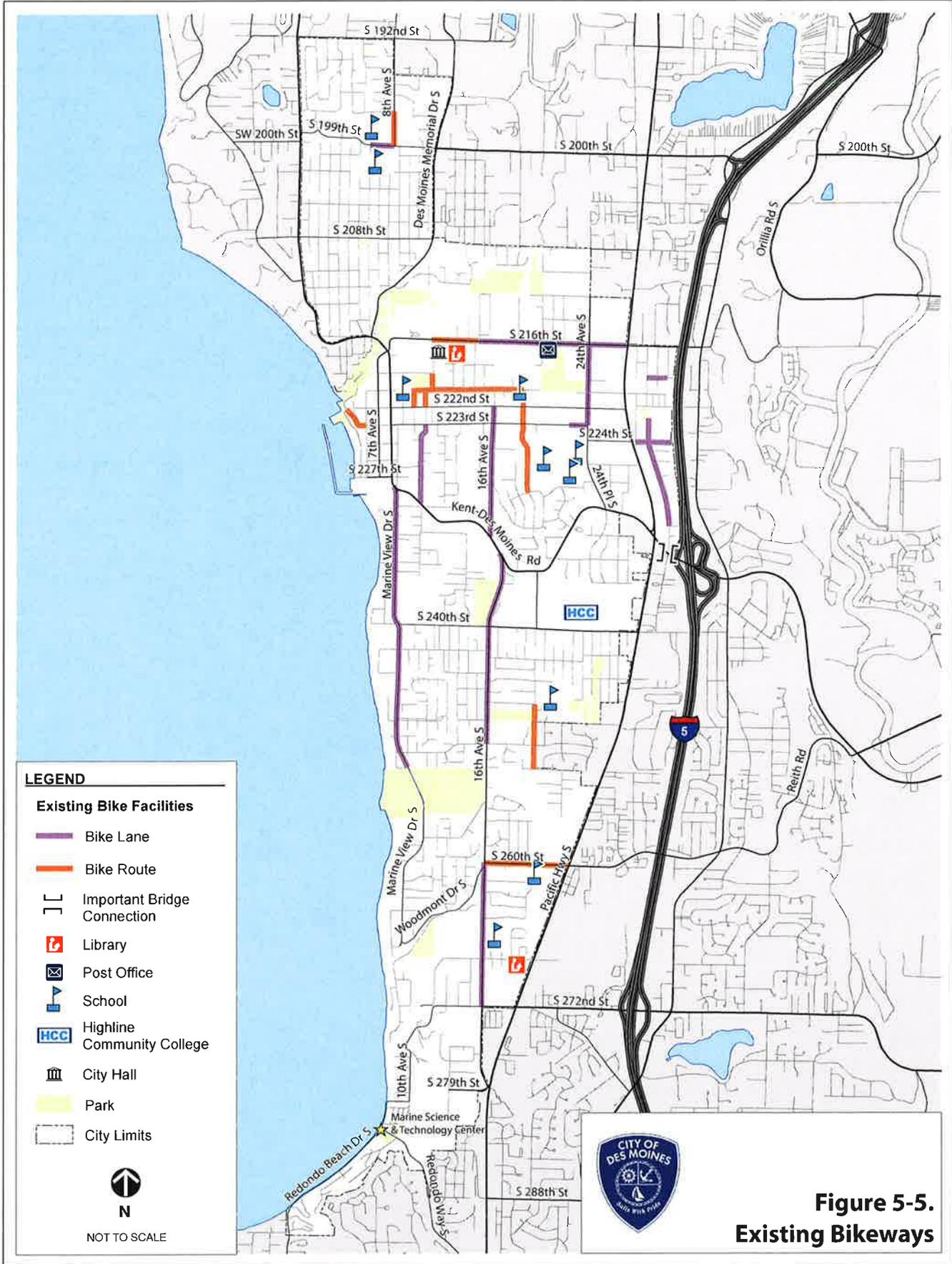
Figure 5-5 shows the existing system and Figure 5-6 shows the proposed bikeway network. Table 5-2 below details the on-street projects by priority.

TABLE 5-2: RECOMMENDED BIKEWAY NETWORK PROJECTS

Rank	Project Name	From	To	Length (miles)
1	16th Ave South Bike Lanes	South 250th Street	South 260th Street	0.65
2	24th Place South Bike Lanes	South 208th Street	Kent-Des Moines Road	1.38
3	South 224th Street Bike Lanes	24th Avenue South	Eastern City Limits	0.44
4	South 240th Street Bike Lanes	Marine View Drive South	Pacific Hwy South	1.26
5	South 216th Street Bike Lanes	Marine View Drive South	I-5	1.57
6	30th Avenue South Bike Lanes	Kent-Des Moines Road	South 216th Street	1.10
7	Kent-Des Moines Road Bike Lanes	Marine View Drive South	Pacific Highway South	1.83
8	Dock Street Bike Lanes	South 227th Street	Cliff Avenue South	0.53
9	Des Moines Memorial Drive South Bike Lanes	South 216th Street	South 208th Street	0.63
10	16th Avenue South	Pacific Hwy South	South 272nd Street	0.44
11	Bicycle Route Network and Way-finding Signs	Citywide	Citywide	13.09
12	Barnes Creek Trail	South 216th Street	Kent-Des Moines Road	1.0

Figure 5-5: Existing Bikeways

Figure 5-6: Recommended Bike System



LEGEND

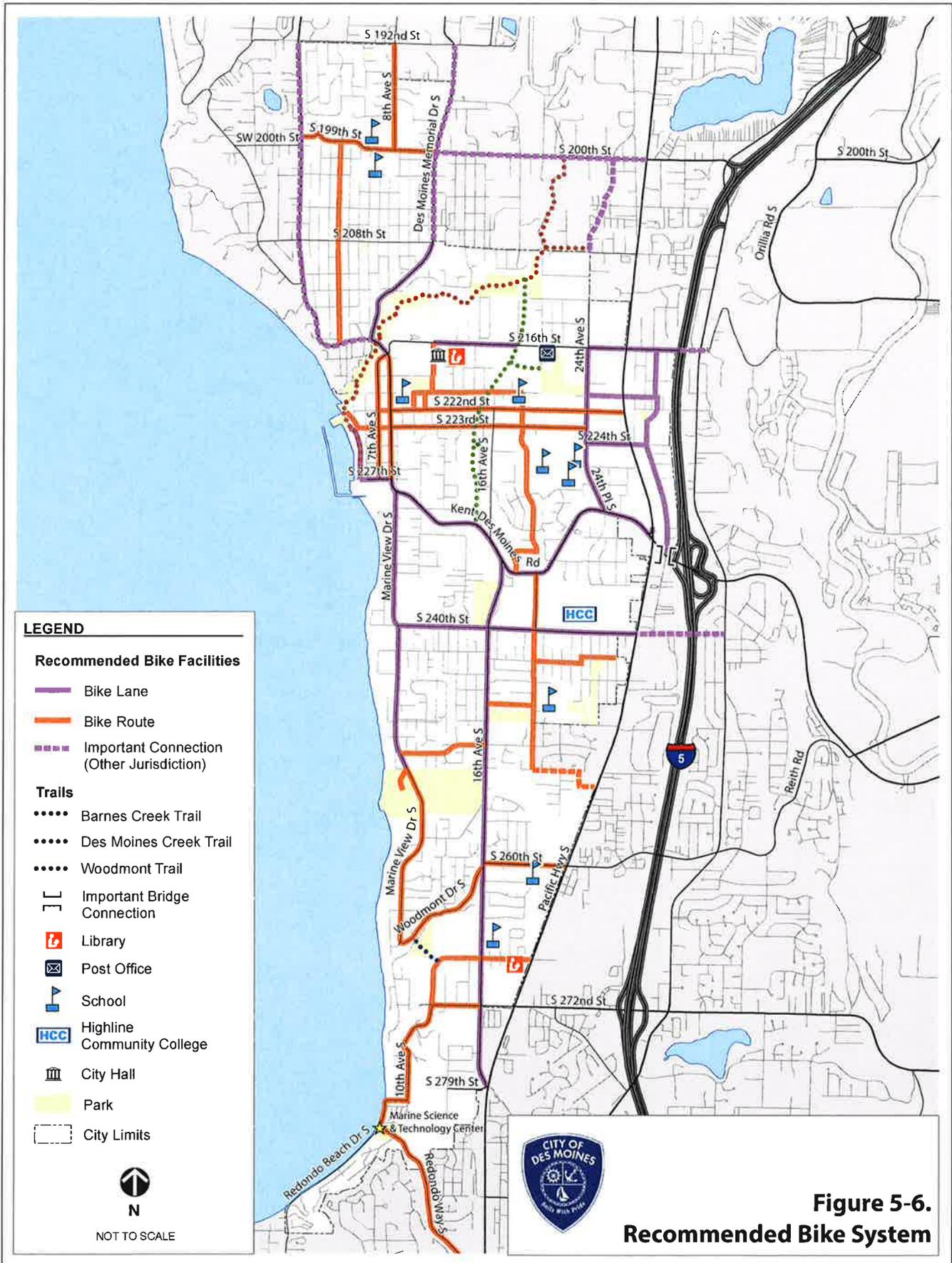
Existing Bike Facilities

- Bike Lane
- Bike Route
- Important Bridge Connection
- Library
- Post Office
- School
- Highline Community College
- City Hall
- Park
- City Limits

N
NOT TO SCALE



**Figure 5-5.
Existing Bikeways**





LOCAL TRANSIT SERVICE

King County Metro Transit (Metro) provides local buses throughout King County. Metro provides local bus service in Des Moines within the City limits and regional connections to both downtown Seattle and Tacoma. **Figure 6-1** shows the transit routes serving the City of Des Moines, separated into those that provide all-day and those that provide peak-only service.

More detail about each of the following routes, including frequency, span of service and weekend information, is included in **Table 6-1**.

Route 121: Provides peak, weekday service between downtown Seattle, Burien, Normandy Park, Des Moines and Highline Community College. Service runs into downtown Seattle in the morning and from downtown Seattle in the afternoon. This route is great for commuters working in Seattle, however inconvenient for students at Highline community college, who would be arriving during the morning peak.

Route 122: Provides direct service intertwined with 121, in between downtown Seattle and Highline Community College/downtown Des Moines. 122 takes a more eastern route through Des Moines, via Des Moines Memorial Parkway.

Route 156: Provides all day service, weekday and weekends, between Southcenter and Highline College, with a stop at the Sea-Tac Airport Station. Travels along 8th Ave S, Des Moines Memorial Drive, and S 216th St through Des Moines.

Route 166: Provides all day service, weekday and weekends, between Kent and Burien. Kent Station has connections to other routes, as well as the Sounder. Route 166 continues as Route 169.

Route 190: Provides peak, weekday service between downtown Seattle and Redondo Heights Park & Ride, with a stop at the Star Lake Freeway Station. Service runs into downtown Seattle in the morning and from downtown Seattle in the afternoon.

Rapid Ride A: Bus Rapid Transit connecting Tukwila International Boulevard Station to Federal Way Transit Center, via International Boulevard and Pacific Highway S. The route runs both directions at all times, and has frequent headways. Message boards are present at major stations, notifying riders of upcoming departures.



TABLE 6-1: EXISTING TRANSIT SERVICE

BUS ROUTE #	ROUTE DIRECTION	WEEKDAY				WEEKEND	
		DAILY TRIPS	APPROX TIME RANGE	PEAK HEADWAY (MINUTES)	OFF-PEAK HEADWAY (MINUTES)	SAT	SUN
121	To Highline CC	10	2:29 PM to 7:53 PM	15	30-60	No	No
	To Downtown Seattle	7	4:47 AM - 9:21 AM	20	30		
122	To Highline CC	8	2:00 PM - 7:20 PM	15	30 - 60	No	No
	To Downtown Seattle	6	6:06 AM - 9:42 AM	30	60		
156	To Southcenter	32	5:06 AM - 10:16 PM	30	30 - 60	Yes	Yes
	To Highline CC	32	5:53 AM - 11:30 PM	30	30 - 60		
166	To Kent	36	4:35 AM - 12:07 AM	30	30 - 60	Yes	Yes
	To Burien	37	5:00 AM - 11:47 PM	30	30 - 60		
190	To Redondo Heights P & R	5	3:20 PM - 6:19 PM	30	30	No	No
	To Downtown Seattle	6	6:00 AM - 8:30 AM	15	20		
A Line	To Tukwila P & R	92	All Day/ Night	10	15 - 60	Yes	Yes
	To Federal Way	92	All Day/ Night	10	15 - 60		



RIDERSHIP

Ridership statistics indicate where the need is highest for service. The greatest number of boarding's and alighting's occur where a high level of service is provided and moderate to high population and/ or employment densities exist. High levels of ridership activity are also found at locations where convenient transfers are possible between routes and where automobile drivers access the transit system at park-and-ride facilities. **Figure 6-2** shows the location and the number of daily boarding's and alighting's on bus routes. The highest boarding activity within the City occurs along Pacific Highway S, notably near Highline Community College. The park and rides also see high ridership and are located outside the city limits.

Figure 6-2: Riders at Metro Bus Stops Daily

TRANSIT RECOMMENDATIONS

Based on observed needs in the Des Moines area, the following regional and local services are identified in **Figure 6-4**. Current plans foresee light rail stops at S 200th St, S 240th St and Star Lake Park & Ride.

Figure 6-4: Future Transit Network



Figure 6-4.
Future Transit Network



TASK E: FUNDING

RECOMMENDED TRANSPORTATION PROJECTS

TABLE 8-1: RECOMMENDED PROJECTS (NEXT PAGE)

REVENUE ESTIMATES

TABLE 8-3: PROJECTED REVENUE FOR TRANSPORTATION IMPROVEMENTS

Funding Source	Potential 22-Year Total (2009-2030)
Existing Revenue Source	Range in \$ Millions
Grants	\$35 to 70
In-Lieu Fees	\$8 to 11
Local Improvement Districts	\$0 to 10
Motor Vehicle Fuel Tax	\$5 to 7
Interest Earnings	\$0.5 to 2
General Fund	\$0
Public Works Trust Fund Loan	\$0
Real Estate Excise Tax	\$3 to 13
Impact Fees	\$25 to 68
Transportation Benefit District	\$0 to 3
Total Revenue Forecasts from Existing Sources	\$76 to \$184 (Average \$130)

Transportation Costs (From Table 8-1)	Range in \$ Millions
Capital Costs	
Capacity Projects	
Non Capacity Projects	
Non Capital Costs	
Total Transportation Costs (2015-2040)	

Additional Revenue Needed from Other Sources	
--	--

Table 8-1

Recommended Projects

City of Des Moines

Project Type	Location	Project Description	Capacity	Safety	Operations	Development	Cost \$Million
Streets							
Arterial Widening Projects							
South 216th Street	Marine View Drive to Interstate 5	Widen to three lanes west of 19th Avenue South, to five lanes east of 19th Avenue South. Add bicycle lane, sidewalks and landscaping. Add signals and intersection improvements as warranted by development. See South 216th Corridor Study (March 2009).	X	X	X	X	\$24.2
24th Avenue South	South 208th Street to South 216th Street	Widen to five lanes with bicycle lane, sidewalks and landscaping.	X			X	\$8.9
24th Avenue South	South 216th Street to Kent-Des Moines Road	Widen to three lanes with bicycle lanes, sidewalks and landscaping. See 24th Avenue South Corridor Study (June 2009).	X	X		X	\$5.8
16th Avenue South	Kent-Des Moines Road to South 260th Street	Widen to three lanes with bicycle lanes, sidewalks and landscaping.	X	X	X	X	\$16.3
Kent-Des Moines Road	Marine View Drive to Pacific Highway South (SR 99)	Widen to three lanes west of 16th Avenue South and to five lanes east to Pacific Highway South with bicycle lanes, sidewalks and landscaping.	X	X	X		\$25.1
Roadway Connections							
16th Avenue South	South 216th Street to South 220th Street	Two-lane roadway connection – collector arterial. See Highest and Best Use Analysis of Historic SR 509 Corridor Study (March 2009). ^[1]			X	X	\$3.3
16th Avenue South	South 276th Street to Pacific Highway South (SR 99)	Two-lane roadway connection/re-alignment – principal arterial.			X	X	\$6.1
20th Avenue South	South 242nd Street to South 244th Street	Two-lane roadway connection – neighborhood collector.			X	X	\$1.5
24th/28th Avenue South (SeaTac)	South 200th Street (SeaTac) to South 208th Street	Create a 4-lane to 5-lane connection to SeaTac. Coordinate with City of SeaTac and WSDOT as part of SR-509 project.	X		X	X	-

[1] Included in South 216th Street Project [2] Included in 16th Avenue South Project [3] Included in 24th Avenue South Project [4] Included in Des Moines Memorial Drive Bike Lane Project.

[5] Red Light Camera Implementation is planned to be revenue-neutral. [6] Incorporated in Rapid Ride BRT Project. [7] ITS Plan being developed in-house.

Table 8-1

Recommended Projects

City of Des Moines

Project Type	Location	Project Description	Capacity	Safety	Operations	Development	Cost \$/Million
Intersections							
South 216th Street	Pacific Highway South	Without SR 509 project: Add one shared left-through lane and right turn pockets eastbound and westbound.	X		X	X	[1]
South 216th Street	Pacific Highway South	With SR 509 project: Add eastbound and westbound through lanes. Retain eastbound right turn lane. Change eastbound and westbound left turn signal phasing to protected.	X		X	X	[1]
South 220th Street	Pacific Highway South	Widen for left turn pockets, adjust roadway profile and approach grades, and revise signal phasing to remove split phases.	X		X	X	\$0.7
Des Moines Memorial Drive	at South 200th Street	Add left turn pockets for all approaches, modify signal. Joint project with City of SeaTac	X	X	X		\$0.8
Des Moines Memorial Drive	at Marine View Drive and South 216th Street	Lengthen approach lanes, coordinate signal with Marine View Drive at 7th Avenue South. Also consider roundabout option.	X		X		\$2.5
Marine View Drive	at South 227th Street	Revise lane configuration to single eastbound right with overlap phase. Add second southbound through lane.	X	X	X		\$0.7
Marine View Drive	at Kent-Des Moines Road	Add second eastbound through lane through intersection.	X		X		\$3.0
Marine View Drive	at South 240th Street	Revise lane configuration, add westbound right turn pocket. Add signal or roundabout if warranted.	X		X		\$0.4
16th Avenue South	at South 240th Street	Add left turn pockets for all approaches.	X	X	X		[2]
16th Avenue South	at South 250th Street	Add eastbound right turn pocket.	X		X		-

[1] Included in South 216th Street Project [2] Included in 16th Avenue South Project [3] Included in 24th Avenue South Project [4] Included in Des Moines Memorial Drive Bike Lane Project.

[5] Red Light Camera Implementation is planned to be revenue-neutral. [6] Incorporated in Rapid Ride BRT Project. [7] ITS Plan being developed in-house.

Table 8-1

Recommended Projects

City of Des Moines

Project Type	Location	Project Description	Capacity	Safety	Operations	Development	Cost \$Million
24th Avenue South	at South 222nd Street	Monitor operation for future signal or other intersection treatment.	X		X		[3]
Safety & Operations							
8th Avenue South	at South 200th Street	Monitor operation for possible future signal or other treatment.		X	X		\$ 0.3
Des Moines Memorial Drive South	at South 208th Street	Add left turn pockets.		X	X		[4]
Des Moines Memorial Drive South	at South 212th Street	Add left turn pockets.		X	X		[4]
Marine View Drive/7th Avenue South	at South 216th Street	Optimize signal timing and coordinate with Des Moines Memorial Drive/Marine View Drive Intersection.		X			\$ 0.3
South 216th Street	at Pacific Highway South	Add red light camera enforcement.		X			[5]
Pacific Highway South	at South 224th Street	Change westbound left turn phasing to protected only		X			\$ 0.1
South 240th Street	at 20th Avenue South	Widen to provide two-way left-turn lane/ refuge pocket along segment. Widen to provide left turn lane at intersection. Improve sight distance at intersection. Install traffic signal if warranted.		X	X		\$ 1.7
South 240th Street (Kent)	at Pacific Highway South	Add dual left turn for eastbound approach, revise signal phasing. Coordinate with City of Kent.	X		X	X	Kent
South 260th Street (Kent)	at Pacific Highway South	Monitor safety and coordinate with City of Kent.		X			Kent
South 272nd Street	east of 16th Avenue South	Consider access control at development driveway access.		X	X	X	\$ 0.1

[1] Included in South 216th Street Project [2] Included in 16th Avenue South Project [3] Included in 24th Avenue South Project [4] Included in Des Moines Memorial Drive Bike Lane Project.

[5] Red Light Camera Implementation is planned to be revenue-neutral. [6] Incorporated in Rapid Ride BRT Project. [7] ITS Plan being developed in-house.

Table 8-1

Recommended Projects

City of Des Moines

Project Type	Location	Project Description	Capacity	Safety	Operations	Development	Cost \$Million
Kent-Des Moines Road	at Pacific Highway South	Improve vehicle detection and signal timing. Carry lane markings through intersection to better define channelization. Add red light camera enforcement.		X	X		\$ 0.1
Redondo Beach Drive South	at Redondo Way South	Monitor operation for possible future signal or other treatment.		X	X		\$ 0.5
System Preservation & Management							
Downtown Circulation Study	Downtown	Develop plan to maximize multi-modal use, pedestrian access and traffic operations.	X	X	X		\$ 0.1
Pacific Highway South	South 216th Street to South 272nd Street	Fiber optic signal interconnect.	X		X		[6]
Marine View Drive South	Des Moines Memorial Drive to Kent-Des Moines Road	Fiber optic signal interconnect.	X		X		\$ 0.30
Pavement Management Program	Citywide	Increase funding program for improvements.		X	X		\$ 30.80
Traffic Management Center	Public Works	Communication and coordination with WSDOT and King County Traffic Management Centers.	X	X	X		\$ 0.20
Traffic Calming Program	Citywide	Fund annual program for improvements.		X	X		\$ 1.10
Parking Management Plan	Downtown and HCC areas	Develop parking management strategy and apply program and actions.		X	X		\$ 0.20
ITS Plan	Arterial Streets	Develop and implement an ITS Plan for City arterials.			X		[7]
Sign and Signal Upgrades	Citywide	Continue to improve signs and traffic signals to meet MUTCD standards.	X	X	X		\$ 1.10

[1] Included in South 216th Street Project [2] Included in 16th Avenue South Project [3] Included in 24th Avenue South Project [4] Included in Des Moines Memorial Drive Bike Lane Project.

[5] Red Light Camera Implementation is planned to be revenue-neutral. [6] Incorporated in Rapid Ride BRT Project. [7] ITS Plan being developed in-house.

Table 8-1

Recommended Projects

City of Des Moines

Project Name/Location	Limits	Length (Miles)	Cost (\$Million)
Pedestrian Projects			
Downtown Commercial Streets	6th Avenue South, East-West cross streets	0.85	\$ 2.0
South 199th and South 200th Street	1st Avenue South to Des Moines Memorial Drive	0.74	\$ 1.8
8th Avenue South	South 194th Street to South 208th Street	0.86	\$ 2.0
South 208th Street	1st Avenue South to Des Moines Memorial Drive	0.7	\$ 1.6
South 222nd Street	Marine View Drive to 24th Avenue South	1.04	\$ 2.5
South 223rd Street	Marine View Drive to 24th Avenue South	1.04	\$ 2.5
South 220th Street	11th Avenue South to 16th Avenue South	0.48	\$ 1.1
9th Avenue South	South 220th Street to Kent-Des Moines Road	0.23	\$ 0.5
10th Avenue South	South 220th Street to Kent-Des Moines Road	0.61	\$ 1.5
16th Avenue South	South 220th Street to Kent-Des Moines Road	0.78	\$ 1.9
Marine View Drive	South 250th Street to Woodmont Drive South	1.05	\$ 2.5
Woodmont Drive South	Marine View Drive to 16th Avenue South	0.65	\$ 3.0
S 272nd Street and 10th Avenue South	16th Avenue South to Redondo Beach Drive	1.09	\$ 7.5
Redondo Beach Drive	Sidewalk to South City Limits	0.16	\$ 0.6
Curb Ramp Replacement Program	Citywide	-	\$ 0.8
Bicycle Projects			
16th Ave South Bike Lanes	South 250th Street to South 260th Street	0.65	[2]
24th Place South Bike Lanes	South 208th Street to Kent-Des Moines Road	1.38	[3]
South 224th Street Bike Lanes	24th Avenue South to Eastern City Limits	0.44	\$ 2.9
South 240th Street Bike Lanes	Marine View Drive South to Pacific Hwy South	1.26	\$ 6.0
South 216th Street Bike Lanes	Marine View Drive South to I-5	1.57	[1]
30th Avenue South Bike Lanes	Kent-Des Moines Road to South 231st Street	1.10	\$ 7.3
Kent-Des Moines Road Bikelanes	Marine View Drive South South 227th Street to Pacific Highway South	1.83	[8]
Dock Street Bike Lanes	South 227th Street to Cliff Avenue South	0.53	[9]
Des Moines Memorial Drive South Bike Lanes	South 216th Street to South 208th Street	0.63	\$ 5.5

[1] Included in South 216th Street Project [2] Included in 16th Avenue South Project [3] Included in 24th Avenue South Project [8] Included in Kent - Des Moines Road Project

[9] Included in Marina Master Plan Implementation [10] Included in 16th Ave S/ S 276th St extension project

Table 8-1

Recommended Projects

City of Des Moines

Project Name/Location	Limits	Length (Miles)	Cost (\$Million)
16th Avenue South	Pacific Hwy South to South 272nd Street	0.44	[10]
Bicycle Route Network and Wayfinding Signs	Citywide to Citywide	13.08	\$ 0.1
Barnes Creek Trail	South 216th Street to Kent-Des Moines Road	1.00	\$ 2.6
Transit			
Transit Hubs	Provide connections to other hubs in Des Moines and to other parts of the region – to the north, east and south.		
Downtown Transit Hub	Develop transit center hub in Downtown to provide convenient service to SeaTac Airport, Pacific Ridge transit hub and Midway/HCC transit hub, along with connections to Burien Transit Center and Kent Commuter Rail Station.		
Midway/Highline Community College Transit Hub/Station	Work with Highline Community College, King County Metro and the Envision Midway planning effort to locate and implement a transit hub, with connections to the Rapid Ride service on Pacific Highway South and other regional destinations, plus connections to Downtown Des Moines and Pacific Ridge transit hubs. Work with Sound Transit on station area planning for Midway Station.		
Pacific Ridge Transit Hub	Work with King County Metro and Sound Transit to develop transit hub near the intersection of Pacific Highway South and South 216th Street to serve the developing Pacific Ridge Neighborhood and the Des Moines Creek Business Park with connections to Midway/HCC and Downtown Des Moines transit hubs. This location could become a light rail stop.		

[1] Included in South 216th Street Project [2] Included in 16th Avenue South Project [3] Included in 24th Avenue South Project [8] Included in Kent - Des Moines Road Project

[9] Included in Marina Master Plan Implementation, [10] Included in 16th Ave S/ S 276th St extension project