OREGON STATE
University

CAMPUS MASTER PLAN
2004-2015

Chapter 6 – Transportation Plan

6.0 Transportation Plan

The university's transportation system must provide all members of the campus community with safe and convenient access to OSU. It must also provide a seamless connection to the local, regional, and statewide transportation system. This necessitates diverse multi-modal transportation improvements, including sidewalks, multi-use paths, bike lanes, roads, transit, and shuttles. Because transportation improvements can negatively impact the campus environment and surrounding land uses, careful and coordinated planning efforts are required. To this end, OSU will make improvements to limit transportation impacts through the campus and to surrounding residential neighborhoods. At the same time, improvements need to provide a convenient, multi-modal, campus-wide transportation network.

OSU will participate in a neighborhood task force in accordance with Appendix C of the CMP. The study area for the task force will be an area encompassing the western boundary of the Cedarhurst Neighborhood Association to the eastern boundary of the North College Hill Neighborhood Association between Harrison Boulevard to the north and Oregon State University District boundary to the south. This includes the College Hill Neighborhood Association. OSU will also participate in other City-approved neighborhood task forces in other defined geographical areas/neighborhoods as necessary.

6.1 Transportation Policies

6.1.1 Plan and construct OSU transportation system improvements consistent with the City of Corvallis Comprehensive Plan, Land Development Code, Transportation Plan, and Standard, Construction Specifications.

6.1.2 OSU shall continue to implement Transportation Demand Management(TDM) measures such as the pre-paid mass transit program and explore opportunities to further reduce reliance on single occupancy vehicles. OSU shall report TDM activities taken and measure of effectiveness with annual parking.

6.1.3 Consider TDM principles, such as continued participation in the pre-paid mass-transit pass program and other measures, whenever possible to avoid or delay construction of new transportation facilities and to reduce reliance on automobiles.

6.1.4 Consider improvements to sidewalks, multi-use paths, on-street bicycle lanes, street alignments, intersections, turn lanes, and road striping as part of the physical development of campus, constructing the improvements as needed or as conditions warrant.

6.1.5 Ensure that the cost of required transportation improvements associated with a project are included in the project construction budget.

6.1.6 Develop an internal funding mechanism that requires that new construction and significant remodeling projects are assessed for needed campus infrastructure and other improvements. An assessment adjustment shall be made for projects that include infrastructure improvements.

6.1.7 Implement improvements along 35th Street in accordance with the OSU-City 35th Street Improvement Agreement.

6.1.8 Design the transportation system to emphasize and encourage walking as the primary form of transportation in the campus core area.

6.1.9 Encourage alternative modes of transportation (e.g., walking, bicycling, car/vanpooling, transit).

6.1.10 Organize the campus core such that academic uses are within a 10-minute walk to facilitate student travel between classes.

6.1.11 Consider pedestrian amenities (lighting, sidewalks, bench placement, planters, courtyards, quads, transit stops/shelters, bike racks, recycling receptacles, etc.) as part of typical street improvements.

6.1.12 Continue to maintain the transportation system of streets, roads, paths, sidewalks, and bicycle lanes for safety and good operating conditions.

6.1.13 Consider all potential funding sources for transportation improvements and maintenance projects.

6.1.14 Continue to review potential funding mechanisms to improve the efficiency and frequency of shuttle service across the campus.

6.1.15 Continue to support the campus shuttle service.

6.1.16 Locate material receiving and distribution facilities in areas that do not create circulation conflicts and/or are least disruptive to surrounding uses.

6.1.17 Continue to take actions to improve campus accessibility from highways and major streets, and by public transportation. Coordinate campus transportation planning and improvements with local government transportation plans and area transit providers that service OSU. Where possible, locate new facilities to take advantage of public transit systems.

6.1.18 OSU shall participate in a neighborhood task force in accordance with Appendix C of the CMP. If other task forces are formed and approved by the City to review traffic conditions within other geographical areas adjacent to the OSU District Boundary, then OSU shall participate in those task forces as well.

6.1.19 OSU shall update its Base Transportation Model in accordance with LDC 3.36.70.

6.1.20 OSU shall update the Traffic Impact Analysis for Sector J in accordance with Sector J Policies 4.2.6.j, 4.2.7.j, and 4.2.8.j.

6.2 Transportation System

The base transportation system on the OSU campus is the existing roads, bike lanes, sidewalks, and multi-use paths. This base system allows people, goods, and services to move safely and efficiently through the campus. The system also aligns with surrounding improvements in the City of Corvallis, Benton County, and State of Oregon. As such, improvements within OSU must be coordinated with adjacent jurisdictions. For planning purposes, OSU is relying on the city's adopted functional classification system to direct the type of improvements needed for system-wide operations. See figures 6.1 and 6.2.

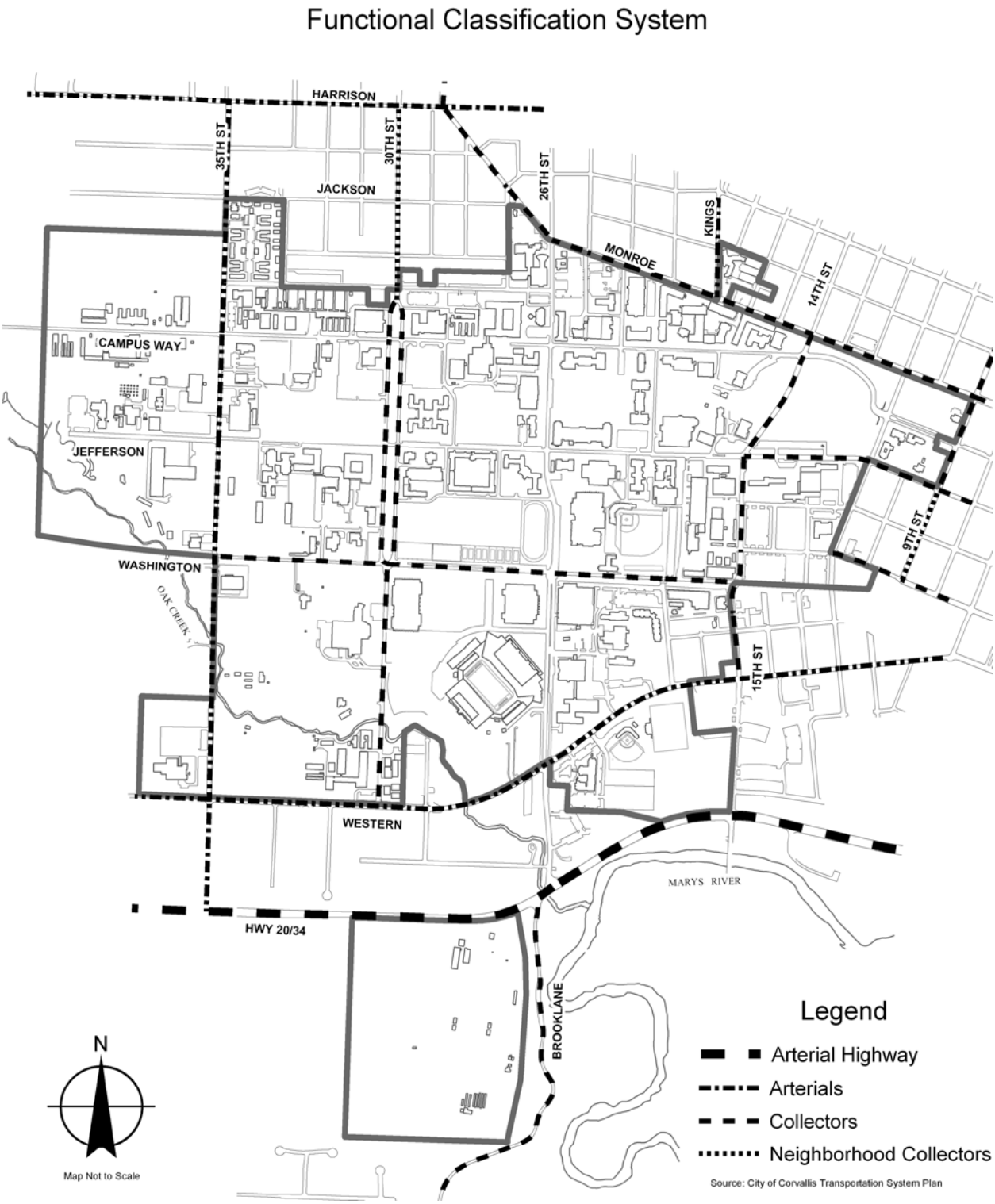

Figure 6.1: Functional Classification Systems

Road improvements generally minimize vehicular community traffic through the OSU campus. Thus, major east-west travel routes are to the north and south of campus. Monroe Avenue and Harrison Blvd./Van Buren Blvd. are on the northern edge of campus; Western Blvd. and Highway 20/34 are on the south. Despite an effort to minimize east-west through-traffic, a number of east-west vehicular corridors still exist. These are Campus Way, Jefferson Way, and Washington Way.

The following are the major east-west and north-south circulation routes through campus:

Campus Way. Provides for east-west travel from 14th Street to 35th Street. Portions of the roadway have restricted vehicular travel regulations (service vehicles only) and vehicular travel is limited to one direction.

Jefferson Way. Provides for east-west travel from downtown Corvallis to 35th Street. Portions of the roadway have restricted vehicular travel regulations (service vehicles only) and vehicular travel is limited to one direction.

Washington Way. Provides for two-way east-west travel from 15th Street to 35th Street.

14th/15th Street. Provides for north-south travel from Harrison/Van Buren Blvd. to Highway 20/34. South of Hwy 20/34, 15th Street serves as a bypass to South Corvallis.

26th Street. Provides for north-south access from Monroe Street through campus to the area known as South Farm. Portions of the roadway have restricted travel regulations (service vehicles only) and vehicular travel is limited to one direction. South of Highway 20/34, the road becomes Brooklane Drive, providing access to South Farm (Sector J).

30th Street. Provides for north-south travel from Harrison Blvd. to Highway 20/34. 30th Street hosts “The Mall,” a wide landscaped center median. The mall extends from Orchard Avenue to Washington Way.

35th Street. Provides for north-south travel from Harrison Blvd. to Highway 20/34 and beyond to the south. 35th Street has varying levels of improvements through the OSU campus. The city-OSU 35th Street Agreement ties various segments of improvements to development on the OSU campus.

Figure 6.2 shows the OSU-owned and publicly owned streets on campus.

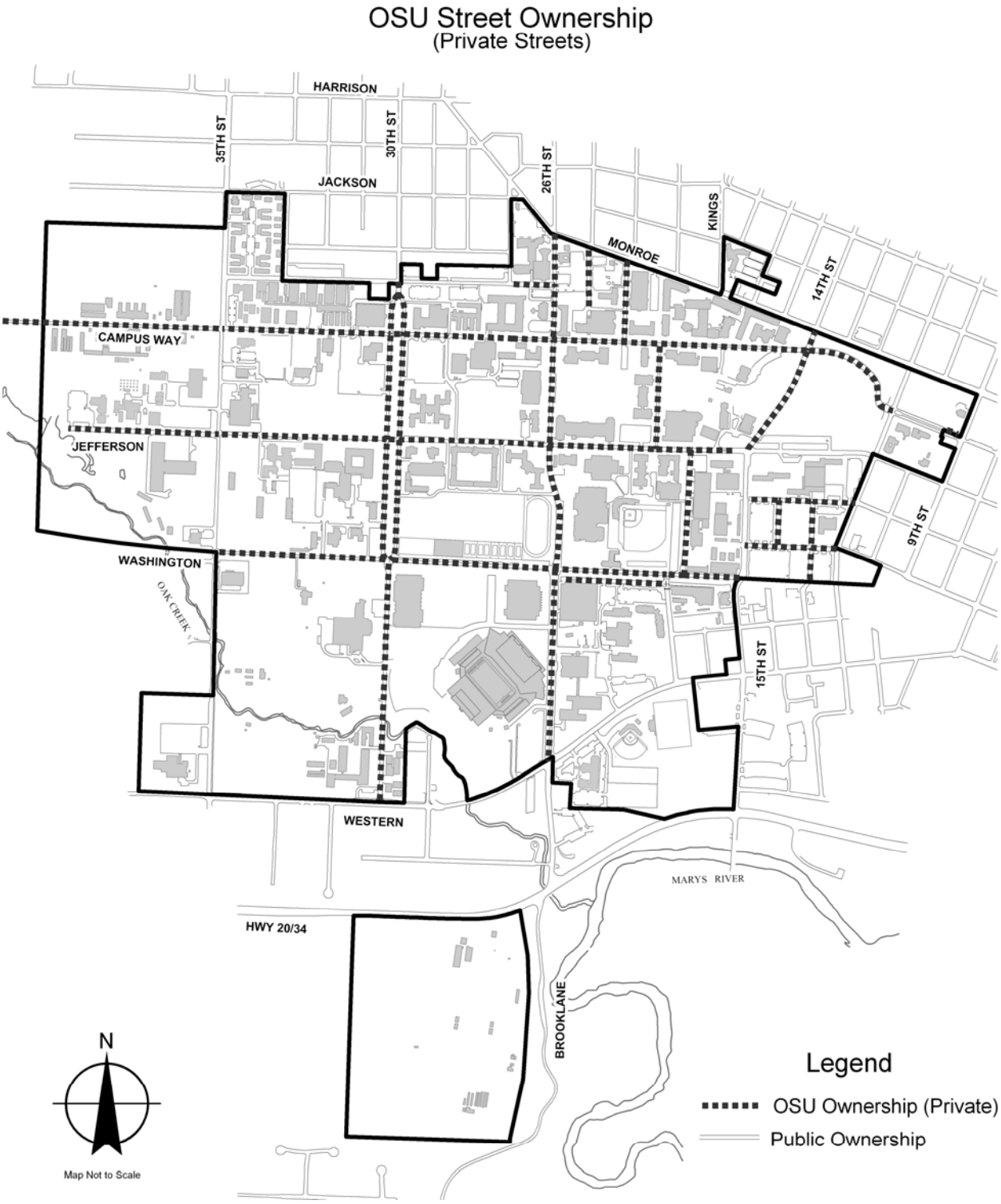

Figure 6.2: OSU Street Ownership (Private Streets)

6.3 Transportation Impacts

Future campus development has the potential to create additional traffic and in turn impact the level of road improvements. By 2015, OSU's student enrollment is projected to increase to 22,500, with faculty/staff projected to increase to 5,100. Building area is also projected to increase by 2.4 to 3.1 million gross square feet, resulting in 1.6 to 2 million assignable square feet (ASF). (For a full discussion of growth, see Chapter 3 – Projected Facility Needs).

Innovative Transportation Concepts, Inc. (ITC), a traffic engineering consulting firm, conducted a comprehensive transportation study in January 2003 to determine OSU's trip generation rates, identify travel patterns and behaviors, and model future transportation impacts. The analysis took the form of a Base Transportation Model (BTM) that consisted of four components:

- Travel survey;
- Model application;
- Transportation Demand Management (TDM) measures, and
- Mitigation measures.

A full report is in the Technical Appendix of this CMP.

6.4 Travel Survey

ITC conducted a detailed travel survey to gather data on campus travel patterns and behaviors. The travel survey had three objectives:

1. Analyze trip generation, mode shares, and the length of trips to and from OSU;

2. Develop weighting factors to adjust the sample data from the surveyed buildings to be representative of similar buildings on campus; and

3. Determine trip generation rates based on predictable independent variables.

The travel survey allowed for the determination of the following:

Trip generation rates. The calculation of the number of trips that result from campus uses. Trip generation rates can be used to assess future traffic impacts and are used in the BTM. Potentially, these rates can also be used by the city to calculate transportation System Development Charges (SDC) for new OSU development.

Mode choice. The quantification of each travel mode for travel to and from campus and for intra-campus travel.

Peak hours. The time period in which travel volumes on campus are at the highest. Peak hours are evaluated for all travel modes and are used in the BTM.

Trip purposes. The identification of the reason for a particular trip. This information is used in building the BTM because trip purpose affects mode choice, time of travel, and trip length.

The travel survey was based on cordon counts and traveler interviews.

a. Cordon Counts

Cordon counts determined the total number of people entering and leaving 16 surveyed buildings. These buildings were chosen to represent student, faculty, and staff needs and include seven general campus use categories:

- Administration (Kerr, Snell-MU East);
- Instruction (Owen, Milam, Weigand, Bexell, Weniger);
- Recreation (Dixon);
- Housing (Cauthorn, Finley, Dixon Housing);
- Research (Nash, Richardson);
- Computer Services/Library (Valley Library, Milne Computing Center); and
- Student Services (Memorial Union).

The counts took place January 20 through January 24, 2003. This period represents the highest potential enrollment; it is a week before students can begin to drop classes without penalty, and includes a full class schedule (i.e., Monday-Wednesday-Friday classes and Tuesday-Thursday classes).

A total of 23,500 people were counted at 15-minute intervals for two periods. The AM period was from 7:45 to 10:45. The PM period was from 4:00 to 6:00. In addition, 8-hour counts were conducted from 7:45 AM to 6:00 PM at Weniger and Finley.

b. Traveler Interviews

Traveler interviews took place January 28 through January 30, 2003. A total of 1,437 people were interviewed. The same buildings used for the cordon counts were used for the interviews.

Each interview was completed in one to three minutes and limited to one page in length. The interviewers were OSU staff (including student interns) and volunteers. All the interviewers received specialized training prior to the interview process. Each interviewer was assigned a building entrance or exit. At locations of high traffic volume, multiple interviewers were assigned.

c. Data Processing

ITC developed generic trip purpose variables for OSU to reflect campus travel behaviors. These variables included:

- Home off campus Based Work (HBW);
- Home off campus Based School (HBSch);
- Home Based Other (HBO);

- Home on campus Based Work (HcBW);
- Home on campus Based School (HcBSch);
- Home on campus Based Other (HcBO);
- Non Home Based (NHB); and
- Campus Based Campus (CBC).

Because not all travelers were interviewed, some of the subgroups (e.g., HBW, HBO, HBSch) were over- or under-represented. To ensure proper representation, a weighting system was developed to improve the accuracy of trip generation rate calculations for the campus as a whole.

d. Weighting System

This weighting system is based on:

- Count/Interview Weight (CIW);
- Building/Purpose Weight (BPW); and
- Building/Purpose Weight, with time factor (BPW2).

For additional details, please consult the Technical Appendix of this CMP.

e. Peak Travel Periods

Trips were quantified as trips per peak period. Peak hours were determined using the weighted survey sample. Trip arrival or departure times from the interview were grouped into 15-minute intervals to be consistent with the count data. The trip survey was split into intra-campus trips and from/to campus trips. To determine the peak hour, only the from/to-campus trips were evaluated, since intra-campus trips are done mainly on foot and almost never involve vehicles.

Based on the data gathered from the travel survey, the AM and PM peaks for all modes, except intra-campus travel, are 8:00 AM to 9:00 AM and 4:30 PM to 5:30 PM. The AM and PM peaks for vehicular trips (all trips except intra-campus) are 8:00 AM to 9:00 AM and 4:15 PM to 5:15 PM or 4:30 PM to 5:30 PM. Peak hour trips are measured by arrival or departure from the buildings. The actual traffic peak on the streets and intersections on and around campus can potentially occur up to 15 minutes earlier or later.

f. Modes of Travel

There are several modes of travel, each contributing to the overall traffic on campus. The modes can be categorized as pedestrian (walkers), bicycle, transit, and private automobile. The BTM identified the modal split for these categories over the survey period. The modal split was grouped into from/to travel and intra-campus travel.

As Table 6.1 indicates, the largest mode share is car drive alone, followed by walking and bicycling. The lowest mode shares are carpool, bus, and OSU shuttle.

Table 6.1: Mode Shares for Travel From/To Campus

Mode	Number of Trips			Percentage		
	AM	PM	Total	AM	PM	Total
Car Drive Alone	7,064	4,534	11,598	61%	50%	56%
Walk	2,491	2,718	5,209	21%	30%	25%
Bicycle	1,071	1,057	2,128	9%	12%	10%
Carpool	414	567	981	4%	6%	5%
Bus	380	174	554	3%	2%	3%
OSU Shuttle	240	88	328	2%	1%	2%
Total	**11,660**	**9,138**	**20,798**	**100%**	**100%**	**100%**

Table 6.2 indicates that the largest mode share for intra-campus travel is walking, followed by car drive alone and bicycle.

Table 6.2: Mode Shares for Intra-Campus Travel

Mode	Number of Trips			Percentage		
	AM	PM	Total	AM	PM	Total
Walk	11,908	11,819	23,727	80%	87%	83%
Car Drive Alone	1,637	1,001	2,638	11%	7%	9%
Bicycle	980	761	1,741	7%	6%	6%
Carpool	173	37	210	1%	0%	1%
OSU Shuttle	54	15	69	0.40%	0.10%	0.20%
Bus	71	0	71	0%	0%	0%
Total	**14,823**	**13,633**	**28,456**	**100%**	**100%**	**100%**

The from/to campus trips are split between home and the campus (HBO, HBSch, and HBW), while intra-campus trips are mostly non-home based (NHB). This implies that campus trips are between class buildings. The peak hour intra-campus travel of 10:15 AM to 10:45 AM also coincides with the time when a majority of classes begin and end.

Mode share surveys were completed in 1984 and 1997. However, these past surveys cannot be used to compare to present data because they were less detailed and used a different collection methodology.

Table 6.3: Historical Mode Share Information

Mode	1984	1987
Auto	34%	41%
Walk	46%	37%
Bicycle	17%	21%
Transit	1%	1%
Other	2%	--

OSU will periodically complete a mode share survey using the methodology developed by ITC. This will ensure consistency in data collection. Future mode share surveys will assist in identifying changing travel trends at OSU.

g. Trip Generation Rates

The travel survey determined trip generation rates using two sets of variables. The first set of variables included the following:

Number of students. Head count of all students enrolled at OSU. The total in February 2002 was 18,834. Paid graduate students are not included in the student head count. This variable is not available for individual buildings.

Enrollment. Count of the student enrollment in all classes or other education activities. This differs from the head count because some students are counted more than once. On average, every student is counted eight times. The total enrollment for winter 2002/2003 is 160,300. This statistic includes both undergraduate and graduate students.

Gross square feet. The total area of all OSU buildings.

Rented beds. All rented beds from student housing on campus. The total is 3,714 for the entire campus in 2003-2004

Employment. All employees working in OSU buildings, including paid graduate students. The total is 6,000 for the entire campus.

The second set of variables is defined by uses that have assignable square footage. Assignable square footage is the amount of the gross square footage that is actually assigned for use.

Table 6.4: Uses with Assignable Square Footage

Use	Abbreviation	Description
Instructional	INS	All instructional floor space including all classrooms, lecture theaters, and teaching laboratories.
Library	LIB	Library floor space including stacks and archives.
Research	RES	Research floor space including laboratories
Administration	ADM	Administrative floor space including offices
Frequent Services	F_SVC	Frequently used services like the OSU bookstore
Occasional Services	O_SVC	Occasionally used services
Recreation	RECR	Mainly Dixon Recreational Center
Events	EVENT	Event floor space like Reser Stadium
Food Services	FOOD	Food services for student housing and restaurants
Physical Plant	PHPLT	Physical plant floor space including power generators
Housing	HOUSE	Student housing

When compared to the Institute of Transportation Engineers Manual (ITE), which is the industry-standard reference for trip generation rates, the results show that for vehicle trips during the peak hour, the rates from the survey are higher than the ITE average rates during the AM peak. However, during the PM peak, the rates from the survey are lower compared to the ITE average rate. This result is consistent with the count data regarding the higher AM peak compared to the PM peak.

Table 6.5: Growth and Assignable Square Footage by Scenario

Future Growth	Existing	Most Likely Scenario	FullBuld-Out Scenario	Total Most Likely Scenario	Total Full Build-Out Scenario
Gross Square Footage	7,675,513	2,465,000	3,155,000	10,140,513	10,830,513
Assignable Square Footage	4,733,787	1,577,600	2,019,200	6,311,387	6,752,987

6.5 Base Transportation Model

The BTM uses the VISUM platform and consists of a classic 3-stage model of trip generation, trip distribution, and trip assignment. The model discriminates between OSU trips and non-OSU trips (i.e., Corvallis and external trips). The non-OSU trips were obtained from the existing Corvallis travel demand model for the 62,500-population scenario.

To coordinate transportation planning, each of the development sectors was further divided into 61 sub-units or Transportation Analysis Zones (TAZ). (See Figure 6.3) Generally, each TAZ has at least one building and/or parking lot that is the origin or destination for vehicle trips. A few of the TAZs do not have existing development but are anticipated to have future development that

will be an origin or destination of vehicle trip generations. By dividing the campus into these sub-units, more detailed analyses could occur at either the building or sector level.

This information was then integrated into the Base Transportation Model (BTM) to analyze the future transportation system needs of the campus.

More detailed information is in the Technical Appendix.

a. Existing Level of Service

Level of Service (LOS) is a description of an intersection in terms of safety, travel speed, frequency of interruptions in traffic flow, ease of turning maneuvers, convenience, and operating cost. The six levels of service range from A to F, with A being the best rating and F the worst.

Table 6.6: Existing Level of Service

				Existing LOS	
Study Intersection		**Control Type**	**Peak Hour**	**Intersection**	**Approach**
North-South	East-West				
9th Street	Jefferson Ave.	2-Way Stop	AM	A	B
			PM	A	C
9th Street	Monroe Ave.	Signalized	AM	C	-
			PM	C	-
11th Street	Jefferson Ave.	2-Way Stop	AM	A	B
			PM	A	C
14th Street	Monroe Ave.	Signalized	AM	C	-
			PM	C	-
15th Street	Western Blvd.	Signalized	AM	D	-
			PM	D	-
15th Street	Washington Way	2-Way Stop	AM	A	B
			PM	A	C
15th Street	Washington Ave.	2-Way Stop	AM	A	B
			PM	A	D
15th Street	Jefferson Ave.	Signalized	AM	C	-
			PM	C	-
17th Street	Western Blvd.	2-Way Stop	AM	A	B
			PM	A	B
17th Street	Washington Way	2-Way Stop	AM	A	A
			PM	A	A
King's Blvd	Monroe Ave.	3-Way Stop	AM	A	A
			PM	B	C
Park Terrace (25th Street)	Monroe Ave.	2-Way Stop	AM	A	C
			PM	A	D

				Existing LOS	
Study Intersection		**Control Type**	**Peak Hour**	**Intersection**	**Approach**
26th Street	Highway 34	2-Way Stop/Signalize	AM	A	F
			PM	B	F
26th Street	Western Blvd.	2-Way Stop	AM	A	C
			PM	A	C
26th Street	Washington	4-Way Stop	AM	A	A
			PM	A	A
26th Street	Monroe Ave.	2-Way Stop	AM	A	B
			PM	A	C
29th Street	Harrison Ave.	Signalized	AM	C	-
			PM	C	-
30th Street	Western Blvd.	2-Way Stop	AM	A	B
			PM	A	C
30th Street	Washington	4-Way Stop	AM	A	A
			PM	A	A
30th Street	Orchard Ave.	2-Way Stop	AM	A	C
			PM	A	C
30th Street	Harrison Ave.	2-Way Stop	AM	A	D
			PM	A	F
35th Street	Highway 34	Signalized	AM	D	-
			PM	C	-
35th Street	Western Blvd.	4-Way Stop	AM	F	F
			PM	F	F
35th Street	Jefferson Ave.	2-Way Stop	AM	A	C
			PM	A	C
35th Street	Campus Way	2-Way Stop	AM	A	C
			PM	A	B
35th Street	Harrison Ave.	2-Way Stop	AM	A	E
			PM	C	F
36th Street	Harrison Ave.	2-Way Stop	AM	B	D
			PM	A	D

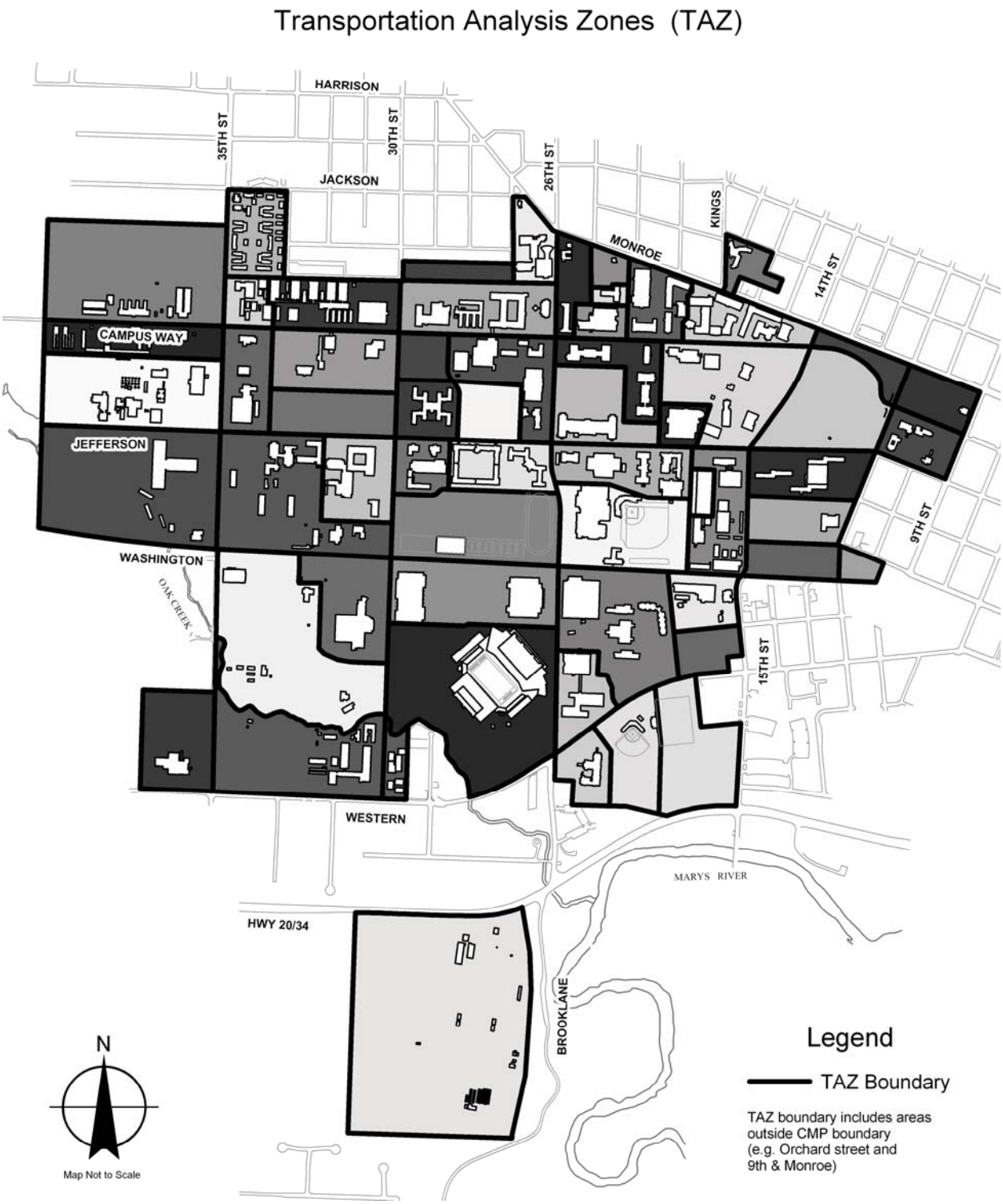

Figure 6.3: Transportation Analysis Zones

b. Trip Generation

The trip generation component of the BTM was modeled for the most likely and future build-out development scenarios. Results of this trip generation are reflected in the AM and PM peak hours per 1,000 square feet of assignable square footage (ASF).

ASF is used as the explanatory variable first because it has the most direct relationship between future development, building occupancy, and actual building activity. Second, data is maintained and updated based on ASF and use for all campus buildings. Lastly, there is a stronger correlation between ASF and trip generation compared to any of the other variables.

c. Trip Distribution

OSU trip distribution was estimated based on the responses to the travel survey. The BTM analyzed trip generation for both AM and PM peak hours. The existing trips for each were used as a baseline to compare the scenarios against projected growth for peak hours.

6.6 Development Scenario Impact on Level of Service

Each development scenario—most likely and full build-out—was modeled against existing conditions to determine the impact of the anticipated growth on the existing level of service at nearby intersections.

Table 6.7: Level of Service by Development Scenario

				Level of Service					
Study Intersection		**Control Type**	**Peak Hour**	**Existing**		**Most Likely**		**Full Build-Out**	
				I*	**A***	**I**	**A**	**I**	**A**
North-South	**East-West**								
9th Street	Jefferson Ave.	2-Way Stop	AM	A	B	A	B	A	B
			PM	A	C	B	D	C	F
9th Street	Monroe Ave.	Signalized	AM	C	-	C	-	C	-
			PM	C	-	C	-	C	-
11th Street	Jefferson Ave.	2-Way Stop	AM	A	B	A	C	B	D
			PM	A	C	A	C	B	D
14th Street	Monroe Ave.	Signalized	AM	C	-	C	-	C	-
			PM	C	-	C	-	D	-
15th Street	Western Blvd.	Signalized	AM	D	-	D	-	D	-
			PM	D	-	D	-	D	-
15th Street	Washington Way	2-Way Stop	AM	A	B	A	C	A	C
			PM	A	C	A	D	C	F

Study Intersection		Control Type	Peak Hour	Level of Service					
				Existing		Most Likely		Full Build-Out	
				I*	A*	I	A	I	A
North-South	**East-West**								
15th Street	Washington Ave.	2-Way Stop	AM	A	B	A	B	A	C
			PM	A	D	A	D	A	E
15th Street	Jefferson Ave.	Signalized	AM	C	-	D	-	D	-
			PM	C	-	C	-	C	-
17th Street	Western Blvd.	2-Way Stop	AM	A	B	A	B	A	B
			PM	A	B	A	B	A	C
17th Street	Washington Way	2-Way Stop	AM	A	A	A	A	A	A
			PM	A	A	A	A	A	B
King's Blvd	Monroe Ave.	3-Way Stop	AM	A	A	B	B	B	B
			PM	B	C	C	C	C	C
Park Terrace (25th Street)	Monroe Ave.	2-Way Stop	AM	A	C	A	F	A	F
			PM	A	D	A	D	A	F
26th Street	Highway 34	2-Way Stop / Signalized	AM	A	F	C	-	C	-
			PM	B	F	D	-	D	-
26th Street	Western Blvd.	2-Way Stop	AM	A	C	A	C	A	E
			PM	A	C	A	D	A	E
26th Street	Washington Way	4-Way Stop	AM	A	A	A	B	B	C
			PM	A	A	A	A	B	B
26th Street	Monroe Ave.	2-Way Stop	AM	A	B	A	C	A	C
			PM	A	C	A	D	B	D
29th Street	Harrison Ave.	Signalized	AM	C	-	C	-	D	-
			PM	C	-	C	-	E	-
30th Street	Western Blvd.	2-Way Stop	AM	A	B	A	C	A	C
			PM	A	C	A	C	A	C
30th Street	Washington Way	4-Way Stop	AM	A	A	B	B	B	C
			PM	A	A	A	B	B	B
30th Street	Orchard Ave.	2-Way Stop	AM	A	C	A	C	A	C
			PM	A	C	A	C	A	C
30th Street	Harrison Ave.	2-Way Stop	AM	A	D	D	F	F	F
			PM	A	F	C	F	F	F
35th Street	Highway 34	Signalized	AM	D	-	D	-	D	-
			PM	C	-	C	-	D	-
35th Street	Western Blvd.	4-Way Stop	AM	F	F	F	F	F	F
			PM	F	F	F	F	F	F

Study Intersection		Control Type	Peak Hour	Level of Service					
				Existing		Most Likely		Full Build-Out	
				I*	A*	I	A	I	A
North-South	**East-West**								
35th Street	Jefferson Ave.	2-Way Stop	AM	A	C	A	E	A	E
			PM	A	C	A	D	B	F
35th Street	Campus Way	2-Way Stop	AM	A	C	A	C	A	C
			PM	A	B	A	C	A	C
35th Street	Harrison Ave.	2-Way Stop	AM	A	E	A	E	A	F
			PM	C	F	F	F	F	F
36th Street	Harrison Ave.	2-Way Stop	AM	B	D	D	F	F	F
			PM	A	D	A	E	B	F

** I = Intersection, A = Approach*

a. Intersection Capacity and Mitigation

1.0 Full Build-Out and Most Likely Scenario

Based on the results of the BTM, a number of intersections have capacity issues (LOS F) for the full build-out scenario as noted below.

The Transportation Improvement Plan was developed to mitigate the failing level of service (LOS F) for the full build-out scenario.

2.0 Capacity

BTM results identified the following intersections as experiencing capacity issues (LOS F) for the full build-out scenario:

- 9th Street / Jefferson Ave.
- 15th Street / Washington Way
- Park Terrace / Monroe Ave.
- 26th Street / Highway 34
- 30th Street / Harrison Blvd.
- 35th Street / Western Blvd.
- 35th Street / Jefferson Way
- 35th Street / Harrison Blvd.
- 36th Street / Harrison Blvd.

9th Street / Jefferson Way. Currently the 9th Street/Jefferson intersection is unsignalized with a 2-way stop sign that allows for uninterrupted travel on Jefferson. The intersection is operating at LOS A in the AM and PM peak. For the most likely scenario it is projected to operate at LOS A and B in the AM and PM peak hours. In the full build-out scenario, AM and PM peaks hours maintain acceptable levels of service with only the PM peak approach having LOS F. Signalization is currently planned by the City. Otherwise a separate left turn-lane would provide mitigation. At this time, no mitigation is proposed, but this intersection will be revaluated as part of future updates to the Base Transportation Model

15th Street / Washington Way. The 15th Street/Washington Way intersection is currently experiencing acceptable levels of service in the AM and PM peak hours. It is in the full build-out scenario that level of service for the approach for the PM peak reaches LOS F. However, this intersection has some operational deficiencies due to its proximity to the railroad, limited right-of-way (a portion of the Washington Way road is within the railroad right of way), limited sight distance for southbound movements, and lack of a designated pedestrian/bike crossing on 15th Street. Mitigation most likely would involve realignment of Washington Way. Improvements provided with re-development of the site south of Kerr Administration or 80% Assignable Future Square Footage trigger for the sector per Table 6.9.

Park Terrace / Monroe Ave. Currently, the southbound approach of Park Terrace/Monroe Ave. is operating at LOS C during the AM peak. For the most likely and full build-out scenarios, the southbound approach will operate at LOS F during the AM peak. However, this intersection does not meet the signalization warrants for either the most likely or the full build-out scenario. (Signal warrant worksheets are in the Technical Appendix.) Furthermore, right-of-way constraints prevent additional intersection improvements at this location. It should be noted that the new Kelly Engineering building will remove a parking lot with 117 parking spaces located directly to the south of this intersection. This will improve operations at this intersection due to lower peak hour volumes approaching in the northbound direction. Further more the intersection is not expected to meet MUTCD signal warrants.

26th Street / Highway 34. The southbound approach of 26th Street/Highway 34 was operating at LOS F during both AM and PM peaks. In the fall of 2003 the intersection was signalized. For the most likely and full build-out scenarios, the analysis was based on the intersection being signalized. The signalization will improve the LOS of the intersection to C and D for the AM and PM peaks, respectively.

30th Street / Harrison Blvd. The southbound approach of 30th Street/Harrison Blvd. is currently operating at LOS F during the PM peak. For the most likely and full build-out scenarios, the southbound approach will continue to operate at LOS F. Due to right-of-way constraints, additional turn bays cannot be added at this intersection. In addition, signalization of this intersection is restricted by the spacing between this intersection and the signalized intersection of 29th Street/Harrison Blvd. Two closely spaced signalized intersections would require non-standard traffic operations at the two intersections.

35th Street / Western Blvd. 35th Street/Western Blvd. is currently a 4-way stop that is operating at LOS F. For the most likely and full build-out scenarios, the intersection will continue to operate at LOS F for the AM and PM peaks.

For mitigation, signalization and the addition of an eastbound left turn lane is recommended. These improvements are included in the Corvallis Capital Improvement Plan.

35th Street / Jefferson Way. The eastbound approach of 35th Street/Jefferson Way will operate at LOS E during the AM peak for the most likely and full build-out scenarios. In the full build-out scenario, it is projected that the PM peak hour approach will have LOS F. Since this approach has low traffic volume, potential mitigation measures will be assessed each year as part of the CMP and BTM updates.

35th Street / Harrison Blvd. 35th Street/Harrison Blvd. is currently a 2-way stop with a northbound approach that is operating at LOS F during the PM peak. For the full build-out scenario, LOS of the northbound and southbound approaches deteriorates to F. The city plans to signalize and add a westbound left turn bay at this intersection. This upgrade is partially funded from System Development Charges. However, the remaining funding is not available and the upgrade will proceed when funding is secured. In addition to the planned upgrade, an eastbound right turn bay should be added for the full build-out scenario.

36th Street / Harrison Blvd. 36th Street/Harrison Blvd. is currently a 2-way stop with a southbound approach that is operating at LOS D during the PM peak. The LOS of the southbound approach for the most likely and full build-out scenarios will deteriorate to F. Upgrade of the intersection will be needed to mitigate this situation. This upgrade is partially funded from System Development Charges. However, the remaining funding is not available and the upgrade will proceed when funding is secured.

It should be noted that the Harrison Corridor Study describes preferred solutions to the intersections described above and the City of Corvallis has been implementing these solutions over the last couple of years.

6.7 Pedestrian and Bicycle Systems

a. Pedestrian Network

The travel survey noted that walking to and from campus is the second most popular mode of travel, with 21 percent and 30 percent respectively for the AM and PM survey periods. For intra-campus travel, walking represents 80 percent of the trips.

The majority of campus streets have sidewalks along both sides. There are also walkways between buildings and across open space areas. Ramps exist at most intersections and strategic locations along existing streets to allow for wheelchair access. New construction shall include pedestrian improvements to ensure connectivity. A list of needed pedestrian improvements is at the end of this section.

b. Bicycle Network

The current bicycle network consists of on-street bicycle lanes (Figure 6.5). However, there is a notable gap in the system along 14th/15th Street between Jefferson and Monroe. Additionally, there are substandard links on 30th Street from Western Blvd. to Washington Way and on 35th Street from Washington Way to Western Blvd.. Road improvement on 30th Street, including bicycle lanes, will occur with the Reser Stadium expansion project. 35th Street bicycle lane improvements will occur with improvements to 35th Street as identified in the OSU-City 35th Street Improvement Agreement.

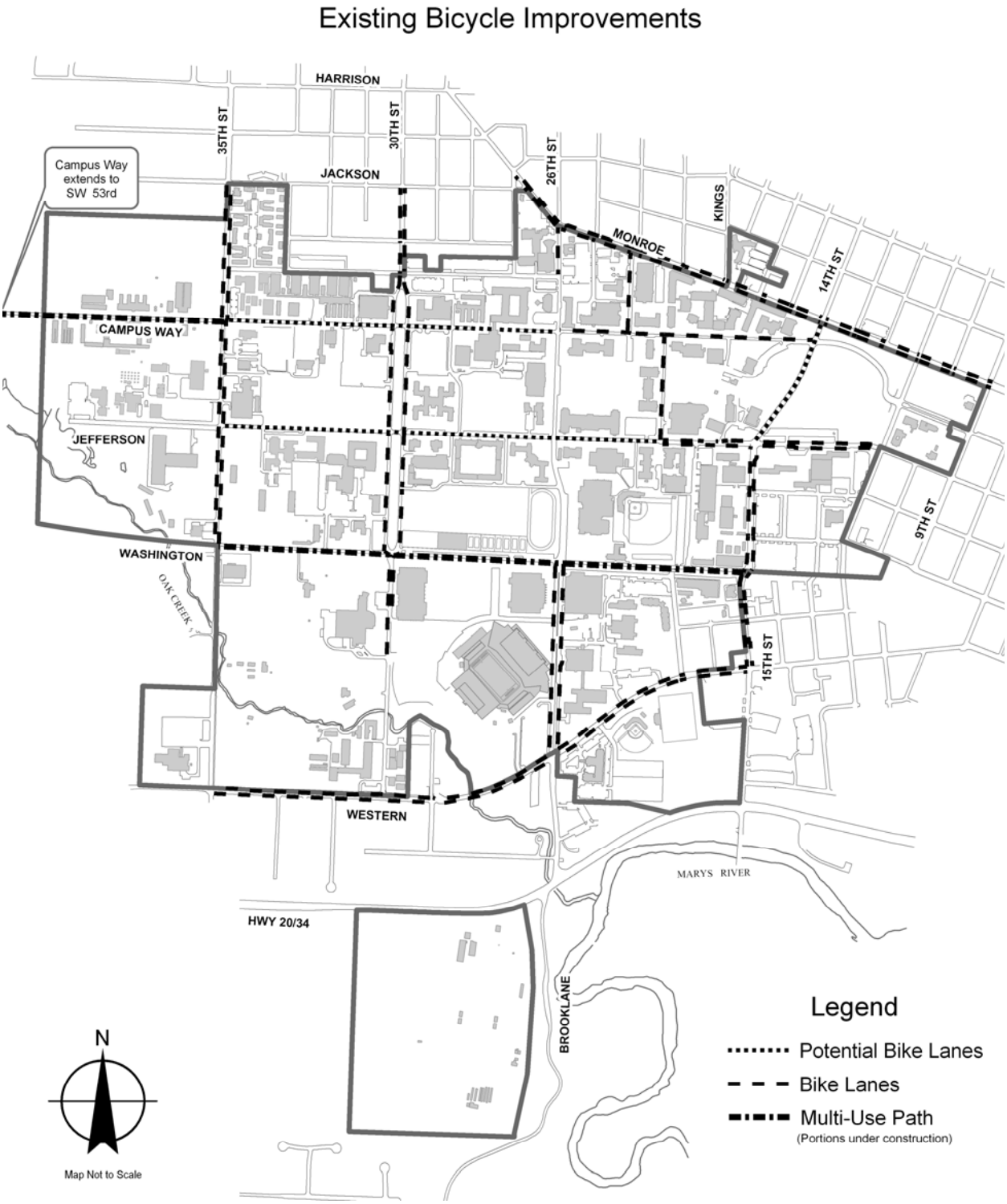

Figure 6.4: Existing Bicycle Improvements

Improvement of bicycle facilities shall also be considered on 26th Street, between Monroe and Washington Way. This would provide for improved north/south travel through the campus. Existing development along the majority of this roadway will necessitate a variety of improvements, including on-street facilities or separated paths.

Convenient bicycle parking is generally provided across campus. When bicycle parking is deficient, additional parking facilities will be provided. The goal is to maintain at least half of the bicycle parking supply as covered.

Whenever practicable, bicycle parking facilities shall be incorporated into new building design through the use of roof overhangs, eaves, covered porches, etc. In some cases, it may also be advantageous to have areas within the building dedicated to bicycle parking. When and where appropriate, bicycle parking shall be centralized as a parking hub or corral that can serve two or more buildings.

When covered bicycle parking structures are provided, the design of the structure (e.g., scale, materials, character) shall be consistent with the architecture of adjacent buildings.

c. Multi-Use Paths

The campus has a number of multi-use paths. Asphalt paths traverse the lower campus area (11th Street to 14th Street). Other paths bisect the library and MU quads. A new multi-use path is being established from 15th Street to 35th Street, immediately south of Washington Way. Portions of this path are currently under construction. A multi-use path extends westward from Campus Way and 35th Street, connecting with the Midge Cramer path to Bald Hill Park. A substandard multi-use path exists on 35th Street. When 35th Street road improvements are made, bike facilities will be included with the improvements.

d. Pedestrian and Bicycle Improvements

To enhance connectivity on campus, the pedestrian and bicycle network needs the following improvements:

- Bike lanes on 14th/15th Street between Monroe and Jefferson
- Sidewalk on the east side of 14th/15th Street
- Sidewalk connection between Benton Hall and 14th/15th Street
- Bike lanes on 26th Street from Washington Way to Monroe Street
- Crosswalk at 15th Street and Washington Way
- Completion of the multi-use path on Washington Way
- Bike lanes and sidewalks and/or multi-use path on 35th Street
- Bike lanes and sidewalks on 30th Street from Western Boulevard to Washington Way
- Bicycle improvements on the interior including Campus Way and Jefferson Way
- Bike lanes and sidewalks on Brooklane Drive with development of the South Farm site in accordance with the 1997 Brooklane Drive – Nash Road Corridor Study or as updated
- Sidewalks along the north side of Washington Way.

As new development occurs or as needs change, additional pedestrian and bicycle facilities are needed. These include:

- Bike racks to be added with new construction
- Bike corrals to be evaluated in areas where bike parking is heavily used
- Motor vehicular travel mode restrictions to be considered in areas where conflicts among vehicles, bicycles and pedestrians result in compromised safety
- Additional shelters to be constructed for covered bicycle parking spaces
- Bike lockers or secure bicycle parking facilities to be considered throughout campus
- Pedestrian and bicycle corridors to be enhanced with crosswalk, lighting, and safety improvements to promote connectivity to the campus

6.8 Transportation Improvement Plan (TIP)

The Transportation Improvement Plan includes transportation projects to address existing deficiencies and mitigate anticipated impacts from future OSU development. The Transportation Improvement Plan will be updated as part of the CMP annual monitoring report. This will ensure a yearly review and updating of the improvement projects is completed so necessary mitigation is completed in accordance with the CMP policies 4.1.14, 4.1.15, and 4.1.16.

OSU recognizes the importance of ensuring that adequate mitigation of adverse impact on the surrounding transportation system's function, capacity and efficiency (e.g., level of serve) is completed in conjunction with new development that might result in said impact. OSU will follow policies that will ensure the CMP and the Transportation Plan is in compliance with the State's Transportation Rule during the planning period of CMP.

Any development proposal that impacts the surrounding transportation system beyond acceptable levels shall incorporate mitigation measures into the scope of the project. If mitigation cannot occur with the proposed development, then said development will either be delayed or the project will be redesigned in a manner that does not impact the surrounding transportation system beyond acceptable levels. These transportation improvement projects (i.e., mitigation) will occur per LDC standards. In addition to this provision, OSU proposes a 50% improvement trigger and an 80% improvement trigger. If development exceeds the maximum allowable square footage for a sector by either 50% or 80%, then vehicular improvement projects identified in the CMP and TIP will be implemented.

The TIP includes projects for all modes of travel. Mitigation may include functional improvements such as intersection signalization, street and intersection reconfiguration, re-striping, bike lanes, multi use paths, sidewalks and standardization of street improvements in accordance with a street's classification, as well as transportation demand management scenarios as outlined herein.

a. Transportation Improvements

Table 6.8 identifies the transportation improvements for, both existing deficiencies and proposed new improvements on a sector by sector basis. Table 6.9 addresses the timing of frontage improvements not directly triggered by development.

Table 6.8: Transportation Improvements by Sector

Sector	Priority Level - Project No.	Location	Improvement	Funding Source	Development Trigger
All Sectors	A-1	Campus Wide	ADA compliant sidewalk upgrades	OSU	As needed to address existing deficiencies and with new and re-development
All Sectors	A-2	Campus Wide	Speed tables, lighting, crosswalk painting and other safety improvements.	OSU	As needed to address existing deficiencies and with new and re-development
All Sectors	A-3	Campus Wide	Bike racks and/or corrals, covered and uncovered	OSU	As needed to address existing deficiencies and with new and re-development,
B	A-4	Washington Way, 30th Street to 35th Street	Sidewalk, north side	OSU	Frontage improvements provided with adjacent development, or 50 % Assignable Future Buildable Square Footage trigger for the sector per Table 6.9
C, D	A-5	14th/15th Street, Monroe Avenue to Jefferson Avenue	Bike lanes, intersection re-alignment and widening, possibly parking improvements. Additionally, sidewalk and landscape strip on east side of street within Sector D	OSU and potential grants	Frontage improvements provided with adjacent development, or 50 % Assignable Future Buildable Square Footage trigger for the sector per Table 6.9 or within 5 years from the date the CMP update is adopted whichever is first.
C	A-6	Washington Way, 26th Street to 15th Street	Sidewalk improvements along north side of Washington Way fronting the ROTC building, west to 26th Street	OSU	Condition of approval for OSU Dixon Recreation Facility Improvements

E, F	A-7	30th Street, Washington Way to Oak Creek bridge	Street upgrade to include travel and bike lanes, curb, gutter, landscape strips and sidewalk (west side).	OSU	Improvements are a condition of approval for the Vet Med Small Animal Hospital Project or per Reser Stadium Expansion condition prior to December 31, 2006
E, F	A-8	30th Street, Oak Creek bridge to Western Boulevard	Street upgrade to include travel and bike lanes, curb, gutter, landscape strips, sidewalks and bridge widening	OSU	Improvements are a condition of approval for the Reser Stadium Expansion - Phase 1 project. If the Reser Stadium Expansion is not constructed, development fronting 30th Street in Sector E will be required to construct the 30th Street improvements, or 50 % Assignable Future Buildable Square Footage trigger for the sector per Table 6.9
E	A-9	35th Street/Western Boulevard intersection	Signalization and addition of turn lanes	City-wide SDC	Improvements to be considered for 04-05 CIP update
E	A-10	Washington Way, 30th Street to 35th Street	Asphalt multi-use path	OSU	Improvements are a condition of approval of the Vet Med Small Animal Hospital project
F	A-11	Washington Way, 26th Street to 30th Street	Asphalt multi-use path	OSU	Improvements are a condition of approval for the Indoor Practice Field project and Gill Annex project, and must be installed by 2005
F, G	A-12	26th Street, Western Boulevard to Washington Way	26th/Western Intersection improvements and 26th Street improvements	OSU	Improvements are a condition of approval for the Reser Stadium Expansion/Parking Structure

All Sectors	B-1	Campus Wide	Shuttle stops and shelters	OSU	As needed to address existing deficiencies and with new and re-development
All Sectors	B-2	Campus Wide	Transit stops and shelters	OSU	As needed to address existing deficiencies and with new and re-development
A, B	B-3	35th Street, Campus Way to Washington Way	Street upgrade, to include travel and bike lanes, curbs, gutters, landscape strips and sidewalks	OSU	As per OSU 35th Street Improvement Agreement, or 80 % Assignable Future Buildable Square Footage trigger for the sector per Table 6.9 whichever is first
A	B-4	Campus Way, west of 35th Street	Local street upgrade	OSU	Frontage improvements provided with adjacent development, or 80 % Assignable Future Buildable Square Footage trigger for the sector per Table 6.9 whichever occurs first
B, C	B-5	30th Street, Orchard Avenue to Washington Way	Pavement upgrade	OSU	Frontage improvements provided with adjacent development
B	B-6	Campus Way, 30th Street to 35th Street	Pavement upgrade	OSU	Frontage improvements provided with adjacent development
B	B-7	Jefferson Way, 30th Street to 35th Street	Pavement upgrade	OSU	Frontage improvements provided with adjacent development
C	B-8	Benton Place, 14th Street to Benton Hall	Sidewalk leading up to Benton Hall from 14th Street	OSU and potential grants	Frontage improvements provided with adjacent development, or 80 % Assignable Future Buildable Square Footage trigger for the sector

					per Table 6.9
C	B-9	26th Street, Monroe Avenue to Washington Way	Bike lanes or other bike facility improvements	OSU and potential grants	Frontage improvements provided with adjacent development, or 80 % Assignable Future Buildable Square Footage trigger for the sector per Table 6.9
C	B-10	Campus Way, 26th Street to 30th Street	Pavement upgrade, bike lanes or other bike facility improvements	OSU	Frontage improvements provided with adjacent development
C	B-11	Jefferson Way, 26th Street to 30th Street	Pavement upgrade, bike lanes or other bike facility improvements	OSU	Frontage improvements provided with adjacent development
C	B-12	Jefferson Way, 26th Street to Waldo Place	Bike lanes or other bike facility improvements	OSU	Frontage improvements provided with adjacent development, or 80 % Assignable Future Buildable Square Footage trigger for the sector per Table 6.9
C	B-13	Memorial Place	Pavement upgrade	OSU	Frontage improvements provided with adjacent development
C	B-14	Park Terrace	Pavement upgrade	OSU	Frontage improvements provided with adjacent development
C, G	B-15	Washington Way/15th Street intersection	Intersection realignment, turn lane, sidewalk and crosswalk upgrade. Coordination with ODOT rail.	OSU	Improvements provided with re-development of site south of Kerr Admin., or 80 % Assignable Future Buildable Square Footage trigger for the sector per Table 6.9

C	B-16	Washington Way, 26th Street to 30th Street	Sidewalk along north side	OSU	Frontage improvements provided with adjacent development, or 80 % Assignable Future Buildable Square Footage trigger for the sector per Table 6.9
E	B-17	35th Street, Washington Way to Western Boulevard	Street upgrade to include travel and bike lanes, curbs, gutters, landscape strips and sidewalks	OSU	As per OSU 35th Street Improvement Agreement, or 80 % Assignable Future Buildable Square Footage trigger for the sector per Table 6.9 whichever is first
J	B-18	Brooklane Drive	Road Street improvements to include travel lanes, curb, gutter sidewalks, bike lanes or multi-use path in accordance with the 1995 Brooklane Drive - Nash Road Corridor study.	OSU and potential grants	Improvements associated with development of the South Farm Property.
Off-site Improve -ments	B-19	35th / 36th Street/Harrison Boulevard intersections	Signalize and add westbound turn lane	City-wide SDC	Scheduled for CIP construction 05-06
Off-site Improve -ments	B-20	30th Street/Harrison Boulevard	Operation deficiencies of the intersection. No mitigation recommended	N/A	N/A
Off-site Improve -ments	B-21	Jackson Street	Work with neighborhood association on traffic issues	OSU/City	Ongoing

b. Prioritization of Improvements

The TIP identifies transportation, bicycle, pedestrian and transit improvements as well as TDM implementation that both address existing deficiencies and the impacts associated with new development. Tables 6.8 prioritizes the existing deficiencies and improvements associated with proposed development. Priority "A" projects have the highest priority. The Campus Planning Committee will manage the implementation of and assess the condition of the vehicular, bicycle, pedestrian and transit improvements across the OSU campus on a yearly basis to keep the TIP current. Transportation Improvement Projects in addition to those in Table 6.8 shall be identified, prioritized and added to the TIP, following review and approval by the City Engineer. Completed TIP projects shall be removed from Table 6.8

An improvement development-trigger on a sector by sector basis related to a sector's development activity in relation to its allocation of buildable square footage is established through this CMP.

Improvements not directly associated with development, require a development trigger to ensure that the transportation system is upgraded as development within a sector occurs. As each new development projects in a sector, adding to the buildable square footage in that sector, improvements would be required based on the extent of the buildable square footage and the priority of the improvements.

Development activity in a sector attaining 50% of the buildable square footage allocated to a sector as established in CMP, Table 8.3, shall trigger construction of the Priority A Improvements in a sector as identified in the TIP, Tables 6.8 and 6.9 Development activity in a sector attaining 80% of the buildable square footage allocated to a sector as established in CMP, Table 8.3 shall trigger construction of the Priority B Improvements in a sector as identified in the TIP, Tables 6.8 and 6.9 The improvements triggered by construction of a portion of a sector's development allocation are summarized in Table 6.9 below.

Table 6.9: Development Triggers Related to Allocated Buildable Square Footages

Sector	Max. Buildable SF (1000 SF), Future Allocation	Priority A Development Trigger, 50% of Future SF Allocation	Priority A Improvements (Table 6.8)	Priority B Development Trigger, 80% of Future SF Allocation	Priority B Improvements (Table 6.8)
A	250 K	125 K		200 K	B-3, B-4
B	500 K	250 K	A-4	400 K	B-3
C	750 K	375 K	A-5	600 K	B-8, B-9, B-12, B-15, B-16
D	35 K	17.5 K	A-5	28 K	
E	120 K	60 K	A-8	96 K	B-17
F	750 K	375 K	A-8	600 K	
G	350 K	175 K		280 K	B-15
H	50 K	25 K		40 K	
J	350 K	175 K		280 K	
Campus Wide	3,155 K	1,577.5 K,		2,524 K	

c. Funding of Improvements

Street improvements are currently funded through new construction or as part of OSU's operation and maintenance budget provided by the State of Oregon. The amount of funding to support basic campus infrastructure is authorized each legislative session and can vary, depending upon funding priorities at the state level.

In recent years, funding from the state legislature has not been adequate to maintain campus facilities and has resulted in deferred maintenance problems at OSU. Additional funding for transportation improvement projects from the state is not likely to be appropriated. Therefore, OSU will continue to explore other funding initiatives such as the recently proposed deferred maintenance bond measure, grants, donations, and other funding sources that can be used for transportation improvement projects. Until additional funding is available, most transportation improvements will generally be provided in conjunction with new construction projects.

Because adequate funding for street and other infrastructure improvements may not be forthcoming from the state, the OSU administration is proposing a campus-wide development surcharge for new construction. This surcharge will allow for the collection of funds to pay for

infrastructure upgrades. The funds collected through the development surcharge will be used for transportation and other infrastructure upgrades.

d. Timing of Improvements

Transportation, bicycle, pedestrian and transit improvements as well as TDM implementation shall be provided in accordance with the Corvallis Land Development Code (LDC) and the Uniform Building Code (UBC). Generally, transportation upgrades are required along a project's frontage. Basic improvements such as streets, sidewalks, landscape strips, bike lanes, curbs, gutters, street lighting, handicapped access ramps, and other safety improvements shall be provided on the site as part of the project. There may also be instances where improvements are needed off-site in order to meet the city's to-and-through policies or to provide continuity of improvements. Issuance of building permits will be predicated upon adequate public improvements.

Improvements shall generally be provided in conjunction with new construction projects. The campus development surcharge will provide a funding source for transportation improvements. Funds collected from the surcharge may be expended when there are adequate funds to complete a project. This may occur as a stand-alone project or in conjunction with other development. The Campus Planning Committee will assist in prioritizing transportation improvement projects (excluding routine repair and maintenance activities) that are identified in addition to the improvements listed in the adopted CMP.

If determined by the Campus Panning Committee that a vehicular, bicycle or pedestrian improvement is needed prior to an improvement's specific timing trigger, the Campus Planning Committee shall trigger the appropriate TIP projects to ensure complete continuous vehicular bicycle or pedestrian connectivity, following review and approval by the City Engineer.

e. Memorandum of Agreement (MOA)

Currently, when transportation improvements are necessary to offset the impact of development, they are identified and evaluated during the development's mandatory discretionary review process. The CMP alters this current review process and proposes that if a project is consistent with the CMP and the LDC, the project can be approved at the staff level and need not be subject to a discretionary review procedure.

Where transportation improvements are required by either the Corvallis Land Development Code or the CMP, TIP, but cannot feasibly be implemented, a Memorandum of Agreement (MOA) shall be provided. One such MOA currently exists for 35th Street improvements. An MOA for transportation improvements could be initiated by either OSU or the city. Approval of an MOA is at the discretion of the City and will be ultimately approved by the City Manager. OSU will prepare the MOA and submit to the City for approval consideration. The MOA would allow for greater detail than is appropriate in a typical master plan and would provide assurances that improvements will occur in a mutually agreed upon manner. Refer to Land Development Code Section 3.36.50.09.c for implementation.

6.9 Transportation Demand Management Scenarios

OSU has prepared three transportation demand management (TDM) scenarios, each of which are discussed below. These scenarios evaluate potential demand management actions that may reduce the number of vehicle trips and the need for additional capacity-related transportation improvements beyond that which is required for a street's given classification.

OSU currently takes the following TDM actions:

- Free on-campus shuttle
- Guaranteed emergency ride home service for those who carpool, vanpool, or ride the bus to work
- Pre-paid Corvallis Transit System pass for students, faculty, and staff
- Participation in Cascades West carpool matching service, or other vehicle pool matching servcies
- Preferred parking for vanpools that are renting government-owned vehicles
- Some alternative work and class schedules available
- Some telecommuting for work and distance education opportunities
- Recently enacted a 50 percent increase in parking costs

a. TDM Scenario 1

This scenario assumes a 50 percent increase in parking costs. For carpools, this scenario assumes an in-house ride-matching service, a 0.25 FTE transportation coordinator, and a guaranteed ride home service to be provided within the City of Corvallis. For vanpools, this scenario assumes a ride-matching service, a 0.25 FTE transportation coordinator, and OSU participation in vanpool development by contributing to the cost of vehicle and/or operating expenses. For transit, this scenario assumes the extension of all Corvallis Transit System routes into the evening, double headways on the Linn-Benton loop bus, extension of the OSU shuttle service into the evening, double headways on all Corvallis Transit System routes, and 20 new bus shelters throughout Corvallis.

b. TDM Scenario 2

This scenario assumes that no changes are made for drive-alone vehicles or carpools. For vanpools, this scenario assumes a ride-matching service, a 0.25 FTE transportation coordinator, and OSU participation in vanpool development on a non-monetary level (such as establishing a relationship with an outside vanpool service). For transit, this scenario assumes extension of all Corvallis Transit System routes into the evening, double headways on the Linn-Benton loop bus, extension of the OSU shuttle service into the evening, double headways on all Corvallis Transit System routes, and 20 new bus shelters throughout Corvallis.

c. TDM Scenario 3

For carpools, this scenario assumes an in-house ride-matching service, a 0.25 FTE transportation coordinator, and a guaranteed ride home service to be provided within the City of Corvallis. For vanpools, this scenario assumes a ride-matching service, a 0.25 FTE transportation coordinator,

and OSU participation in vanpool development by contributing to the cost of vehicle and/or operating expenses. This scenario assumes no improvements are made for transit.

TDM Scenario 3 implementation shall occur immediately following adoption of this CMP. Refer to CMP Tables 6.8 and 6.9 for TDM Scenario timing.

Table 6.10 identifies the three TDM scenarios and the effect the actions in each scenario would have on the various modes of travel. A level of support of 1 indicates the highest level, while 4 indicates the lowest level.

Table 6.10: Transportation Demand Management Scenarios

TDM Scenario	Program Entries	Drive Alone	Carpool	Vanpool	Transit	Vehicle Trip Reduction %
1	Level of Support	-	3	2	4	10.7%
	Walk time Cost	0 min $0.50	0 min $0.50	0 min -$0.50	-15 min $0.00	
2	Level of Support	-	1	1	4	5.9%
	Walk time Cost	0 min $0.00	0 min $0.00	0 min $0.00	-15 min $0.00	
3	Level of Support	-	3	2	2	3%
	Walk time Cost	0 min $0.00	0 min $0.00	0 min -$0.50	0 min $0.00	

Table 6.11 shows the vehicle trips generated for the most likely and full build-out scenarios and the adjusted number of trips based on the three TDM scenarios.

Table 6.11: Trips Generated by TDM Scenarios

Scenario	HBO PM*	HBSch PM	HBW PM	NHB PM	Total PM	HBO AM	HBSch AM	HBW AM	NHB AM	Total AM
Existing AM	55	163	128	315	661	344	916	3,191	807	5,258
Existing PM	289	431	1,202	766	2688	224	90	71	388	773
Most Likely AM	71	179	163	404	817	449	1,005	4,049	1037	6,540
Most Likely PM	377	473	1,525	984	3359	293	99	90	499	981
Full Build-out AM	60	183	190	451	884	497	1,025	4,715	1,158	7,395
Full Build-Out PM	418	483	1,776	1099	3776	324	101	105	557	1,087
Most Likely AM TDM 1	64	160	145	361	730	401	897	3,616	926	5,840
Most Likely PM TDM 1	337	423	1,362	879	3001	261	88	81	446	876
Most Likely AM TDM 2	67	169	153	380	769	422	946	3,810	976	6,154
Most Likely PM TDM 2	355	445	1,435	926	3161	275	93	85	470	923
Most Likely AM TDM 3	69	174	158	392	793	435	975	3,928	1,006	6,344
Most Likely PM TDM 3	366	459	1,480	955	3260	284	96	88	484	952

** HBO - Home Based Other; HBSch - Home Based School; HBW - Home Based Work; NHB - Non Home Based. All data subject to revision based on ongoing review and analysis.*

Table 6.12 shows the increase in vehicle trips above the existing levels for the most likely and full build-out scenarios and the adjusted number of trips based on the three TDM scenarios.

Table 6.12: Percentage Increase of Trips above Current Levels by TDM Scenarios

SCENARIO	HBO PM*	HBSch PM	HBW PM	NHB PM	Total PM	HBO AM	HBSch AM	HBW	NHB	Total AM
Most Likely AM	31%	10%	27%	28%	24%	31%	10%	27%	28%	24%
Most Likely PM	31%	10%	27%	28%	25%	31%	10%	27%	28%	27%
Full Build-out AM	10%	12%	48%	43%	34%	45%	12%	48%	43%	41%
Full Build-out PM	45%	12%	48%	43%	40%	45%	12%	48%	43%	41%
Most Likely AM TDM 1	17%	-2%	13%	15%	10%	17%	-2%	13%	15%	11%
Most Likely PM TDM 1	17%	-2%	13%	15%	12%	17%	-2%	13%	15%	13%
Most Likely AM TDM 2	23%	3%	19%	21%	16%	23%	3%	19%	21%	17%
Most Likely PM TDM 2	23%	3%	19%	21%	18%	23%	3%	19%	21%	19%
Most Likely AM TDM 3	27%	6%	23%	25%	20%	27%	6%	23%	25%	21%
Most Likely PM TDM 3	27%	6%	23%	25%	21%	27%	6%	23%	25%	23%

** HBO - Home Based Other; HBSch - Home Based School; HBW - Home Based Work; NHB - Non Home Based. All data subject to revision based on ongoing review and analysis.*

The most likely development scenario results in a 24 to 77 percent increase in the total number of AM and PM trips. However, in both the AM and PM periods, Home Base School has an increase of 10 percent over existing conditions. The full build-out scenario results in an increase of 34 to 40 percent for both AM and PM trips, with the greatest increase occurring in Home Base Work (48 percent) for both AM and PM trips.

It is interesting to note that if the actions outlined in Scenario 1 and 2 were undertaken, transportation impacts of CMP future development would be similar to current conditions. If either TDM Scenario 1 or 2 were implemented, this would help to offset the traffic impacts from the most likely scenario. For the full build-out scenario, TDM strategies are projected to lessen the anticipated amount of traffic. It will be important to monitor transportation impacts to determine if the identified improvements will continue to be needed in the future.

6.10 Transit Systems

a. Corvallis Transit System

OSU currently participates in the Corvallis Transit System's pre-paid transit pass program. All OSU students, faculty, and staff can ride Corvallis Transit System (CTS) by showing their OSU identification cards. This ensures that cost of transit service is not a factor in their transportation mode choice.

The OSU campus is on CTS Routes 1, 3, 5, 6, 7 and 8. Routes 1, 3, 7 and 8 are hourly while Routes 5 and 6 are every half-hour. Weekday service starts at 6:15 AM (Route 6) at the intermodal Mall, with the last run leaving the Intermodal Mall at 7:05 PM (Route 1). Saturday service starts at 9:20 AM (Route 7) at the Intermodal Mall, with the last runs leaving the Intermodal Mall at 4:15 PM (Routes 3, 5 and 6).

CTS has ten scheduled stops along the perimeter and within campus, as shown in Table 6.15.

Table 6.13: Corvallis Transit Bus System Scheduled Stops at OSU

CTS Route	Location	Time the bus is at this location
1	Monroe Avenue at 14th Street	:35 after the hour
3	26th Street at Reser Stadium	:45 after the hour
3	35th Street at Western Boulevard	:00 on the hour
3	Jefferson Avenue at 15th Street	:05 after the hour
5	Kings Boulevard at Monroe Avenue	:00 on the hour and :30 after the hour
6	Jefferson Avenue at 15th Street	:55 after the hour and :25 after the hour
7	Monroe Avenue at Kings Boulevard	:10 after the hour
8	Jefferson Way at 30th Street	:35 after the hour
8	Western Boulevard at 35th Street	:50 after the hour
8	Jefferson Avenue at 15th Street	:55 after the hour

Source: Corvallis Transit, Service Route, Map and Schedule. Effective June 1, 1999

OSU plans to continue participation in the pre-paid ride program. Recently, increased enrollment and the propensity of students to drive to campus have raised parking demand. OSU is trying to meet this parking demand and mitigate the impact on local residents through the OSU shuttle service, which improves accessibility to more distant parking facilities such as those at Reser Stadium.

Additionally, OSU is working with local transit authorities to institute a Transportation Demand Base Management strategy to encourage alternative methods of commuting. This includes promoting increasing the cost of parking, increasing availability and awareness of carpools and vanpools, bicycling, walking, telecommuting, and alternative work hours, among other strategies.

b. Linn-Benton Loop System

The Linn-Benton Loop System also provides transit service to the campus, with a stop at 15th Street and Jefferson Way. OSU currently provides some financial support to the Linn-Benton Loop System. OSU will consider future support of the system as a TDM measure.

c. OSU Shuttle System

To help offset the increasing demand for parking and to minimize intra-campus vehicular trips, OSU implemented a shuttle system in January 2000.

The shuttle buses operate Monday through Friday between 7:30 AM and 6:30 PM over the academic year. The East Shuttle Route covers the eastern portion of campus, and the West Shuttle Route covers the western portion of campus.

Table 6.14: OSU Shuttle Ridership

Term	Ridership	Year Total
Winter 2000	12,546	
Spring 2000	15,334	
Fall 2000	32,387	60,267
Winter 2001	42,893	
Spring 2001	38,872	
Fall 2001	56,450	138,215
Winter 2002	75,703	
Spring 2002	60,309	
Fall 2002	64,549	200,561
Winter 2003	69,176	
Spring 2003	56,139	
Fall 2003*	TBD	125,315

** Year total figure does not include Fall 2003*

Shuttle ridership has increased significantly since the shuttle's introduction. The shuttle is a key component of both the transportation and parking plans. It improves intra-campus travel and also allows for better usage of parking facilities. In most cases, the shuttle provides better campus destination accessibility than does a private automobile.

d. Options for Improving Transit Systems

The goals of any transit system improvement strategy are to improve access to the transit system and increase the frequency of trips. By expanding the hours of operation and adding additional buses, the frequency of service can increase and better access to the transit system can be provided. Oregon State University shall fund the additional CTS operating expenses associated with increased hours of operation, doubling of headways and new bus shelters benefiting OSU Campus.

Another improvement to the transit system on campus is to make transit routes (both for OSU and CTS) safer. It is not uncommon for buses to travel across campus during periods of high pedestrian traffic volumes. Consolidating transit stops to reduce the number of stops and traffic merging maneuvers (without compromising transit ridership opportunities), along with centralizing CTS transit stops to key locations, could help improve transit system efficiency and increase safety on campus.

Other options for improving transit systems include:

- Extend CTS hours of service into the evening.
- Improve service times for those areas that have hourly service. Focus on the locations where students live. Shorter headways could be implemented as a seasonal service.
- Provide more frequent service between OSU and LBCC. The loop bus currently runs hourly. Between 10 AM and 2 PM, the route runs as an express, which allows students to travel between OSU and LBCC on an hourly basis. The service is less frequent in the early morning and late afternoon. More riders could be attracted to the route if headways were shorter and if the service were extended into the evenings.
- Construct more shelters at bus stops.
- Expand the on-campus shuttle service as the student population grows. Use bigger buses or add a third route, if needed. Include new outlying parking lots in the shuttle routes. Service should be extended into the evening.
- Review mechanisms to improve efficiencies and operating costs (e.g., develop transit hubs at key locations for CTS and coordinate OSU shuttles from these areas).