

Section 3

Future Conditions Analysis

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INTRODUCTION

This section presents estimates of long-term future travel conditions within the TSP study area. The long-term future transportation needs for the City of Boardman were examined based on available employment and population forecasts, identified development activities, results from the operational analysis of the existing street system, and extensive discussions with regional transportation personnel and representatives from the City of Boardman.

TRANSPORTATION DEMAND

Future transportation demand within the City of Boardman was estimated based on expected growth in the study area population, employment, and traffic traveling through the study area for the horizon year 2020. Future growth estimates were developed based on historical traffic volume trends in the study area as well as consideration of the unique trip making characteristics of residential and employment-based activities. The estimation included a review of the land use mix proposed in the city's Comprehensive Plan.

Land Use/Demographics

Year 2020 traffic volumes on the City of Boardman's transportation system were forecast based on population and employment estimates developed by the State of Oregon for Morrow County and the city. These estimates were compared against recent development trends, planned developments, and forecast growth rates provided by local agencies to verify their appropriateness. The 20-year planning horizon was chosen to ensure compliance with the Transportation Planning Rule.

Population and Employment Projections

Tables 3 and 4 summarize population and employment projections prepared for the City of Boardman in conjunction with the TSP process. In reviewing the two tables, it should be noted that the estimates contained in Table 3 include the population within the city limits as well as the Urban Growth Area (UGA). The employment estimates shown in Table 4 are for the city only.

**TABLE 3
POPULATION PROJECTIONS**

Year	1990	1997	2000	2002	2005	2010	2015	2020	1997-2020 Average
City of Boardman Projections									
Projected Population -Including UGA	1,387 --	2,700 3,062	3,126 3,545	3,446 3,908	3,635 4,123	3,936 4,463	4,240 4,808	4,523 5,129	--
Annual Percent Change	--	10.0%	5.0%	5.0%	1.8%	1.6%	1.5%	1.3%	2.3%
Morrow County Projections									
Projected Population	--	9,895	11,131	12,039	12,701	13,750	14,812	15,801	--
Annual Percent Change	--	--	4.0%	4.0%	1.8%	1.6%	1.5%	1.3%	2.1%

**TABLE 4
EMPLOYMENT PROJECTIONS**

Year	1990	1997	2000	2002	2005	2010	2015	2020
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City of Boardman Projections								
Projected Employment	641	1,029	1,261	1,444	1,528	1,646	1,730	1,809
Annual Percent Change	--	7.0%	7.0%	7.0%	1.9%	1.5%	1.0%	0.9%
Morrow County Projections								
Projected Employment	2,232	2,924	3,283	3,449	3,613	3,890	4,097	4,290
Annual Percent Change	--	3.93%	3.93%	2.5%	1.9%	1.5%	1.0%	0.9%

As shown in Table 3, the City of Boardman's population (including those persons in the UGA) is forecast to grow by an average annual rate of 2.3 percent (approximately 2,065 people) between 1997 (estimated population of 3,062) and 2020 (projected population of 5,129). During the same 23-year period, approximately 780 additional employment opportunities are anticipated in the city. The growth projections prepared for the city suggest that the city's growth will be substantial in the near-term and will moderate in the long-term.

Over the course of the same forecasting period, the population of Morrow County is projected to increase by approximately 2.1 percent annually (from an estimated population of 9,895 in 1997 to a projected population of 15,801 in 2020). Countywide employment is expected to increase by approximately 1,365 jobs during the same 23-year period. The County is anticipating strong growth in the near-term horizon with the annual growth rate more closely paralleling Boardman's after the year 2005. Clearly, with over half of all the anticipated countywide job additions occurring in the City of Boardman, the city will be contributing significantly to the region's future.

Such findings are reflective of the current development patterns being experienced in the area, including large-scale development activities that have been transpiring within Boardman in the last few years. The availability of new employment opportunities related to the Two Rivers Correctional Facility, the U.S. Army Chemical Weapons Incinerator Project, the Wal-Mart Distribution Center and other projects in neighboring communities, in conjunction with job growth in Boardman, is expected to result in continued residential development in Boardman.

It should be noted that the employment rate in Boardman was estimated to be lower than the population growth rate for the period 1990 through 1997 because of the previously mentioned employment opportunities in neighboring communities. Further details regarding the employment and growth assumptions are detailed in Appendix "C."

Anticipated Future Growth

In an effort to account for regional traffic growth, a net annual growth rate was chosen to forecast the year 2020 traffic analysis. This rate was determined based on a review of historical traffic volume trends, anticipated population and employment growth, regional population densities, and local knowledge of planned development.

Historical Growth

Based on discussions with regional Oregon Department of Transportation (ODOT) staff, no historical traffic volume data could be identified for the City of Boardman. A review of local traffic volume data on nearby Highway 730 indicated a historical 0.6 percent growth rate between 1960 and 1996 (Refer to Figure 7). Considering only the past five years and using additional data available for Interstates 82 and 84, the annual traffic growth rate was approximately three percent.

Using this information in conjunction with local population/employment estimates and insights gained through TSPs prepared for the neighboring cities of Irrigon and Umatilla, the addition of new residents and jobs in the region over the next 20 years is expected to result in a growth in traffic of approximately 2.9 percent annually. The traffic growth can be expected to parallel population growth; hence the near-term growth in traffic volumes is expected to be more substantial than the long-term growth rate.

PLANNED TRANSPORTATION IMPROVEMENTS

One planned roadway improvement project was identified within the City of Boardman urban growth boundary at the time the TSP was prepared as discussed below.

North Main Street Pedestrian/Bicycle Enhancements

As noted in the **Existing Conditions Section**, the North Main Street bridge structure that carries Main Street traffic over the Union Pacific Railroad (located between Columbia Avenue and Marine Drive) has been identified as deficient. The existing bridge structure is too narrow and does not provide any pedestrian or bicycle amenities.

At the time this TSP was prepared, the city had been notified that it had qualified for federal funding through Transportation Efficiency Act for the 21st Century (TEA-21). This funding will be used to widen the existing bridge structure to accommodate pedestrian and bicycle facilities.

No other planned improvement projects were identified.

FORECAST FUTURE TRAFFIC VOLUMES/DEFICIENCIES

The transportation needs and travel demand patterns of Boardman will change with time. It is generally understood that as smaller rural communities grow in population and employment they become more self-sufficient entities and better able to serve the full needs of their population. Citizens are able to find employment and services desired within the community instead of having to travel to large urban areas located nearby. The benefit to the transportation system is in the potential for some of these trips (now local as opposed to long distance) to be made via modes other than the automobile; thus reducing demand on the overall network. The future traffic volume forecast presented in this report reflects the anticipated benefits of a more multi-modal transportation system as well as the changing character of travel demand.

Future traffic conditions within the City of Boardman were forecast by applying the 2.9 percent annual growth rate assuming a “no-build” condition (i.e., no new roadways would be constructed in the 23-year horizon) to the 1998 existing intersection traffic counts (refer to Figure 6). The future conditions analysis also included the introduction of additional traffic to select side street locations (most notably near the Port of Morrow and on the south end of South Main Street). The additional traffic was estimated in an effort to gauge the likely impact of residential and commercial development activities in areas that local officials indicated are likely to develop in the coming years. Figure 8 summarizes the forecast year 2020 weekday p.m. peak hour traffic volumes at the study intersections under the no-build condition.

Figure 7
Historic Growth Trends on Highway 730

Figure 8
Forecast 2020 Traffic Volumes Weekday PM Peak Hour

Level of Service Analysis

As previously stated, ODOT stipulates that intersection major street levels of service “A” through “C” are considered acceptable on the Interstate 84 corridor through the City of Boardman. To ensure that the local study area intersections will continue to operate at an acceptable level of service, the forecast future traffic volumes were analyzed. The findings of this analysis are summarized in Table 5.

TABLE 5
2020 FUTURE FORECAST LEVEL OF SERVICE, UNSIGNALIZED INTERSECTIONS

Intersection	Critical Movement	V/C	Average Delay (sec/veh)	Critical Movement LOS	Major Street LOS
Marine Drive/Main Street	Westbound	0.05	3.9	A	A
Columbia Avenue/Main Street	Westbound	0.37	10.2	C	A
Boardman Avenue/Main Street	Westbound	0.17	11.1	C	A
Front Street/North Main Street	Westbound	0.27	17.4	C	A
I-84 Westbound Ramp/Main Street	Westbound	0.82	> 45	F	A
I-84 Eastbound Ramp/Main Street	Eastbound	0.20	24.9	D	A
Front Street/South Main Street	Eastbound	0.28	19.0	C	A
Wilson Road/South Main Street	Southbound	0.75	17.0	C	A
Olson Road/Columbia Avenue	Southbound	0.21	5.3	B	A
Laurel Lane/Columbia Avenue	Westbound Left	0.17	6.0	B	A

Legend: LOS = Level of Service, V/C = Volume/Capacity Ratio

As Table 5 indicates, all of the unsignalized study area intersections are forecast to continue operating at acceptable levels of service under year 2020 weekday p.m. peak hour conditions except for the intersections of Interstate 84 ramps at Main Street. The Interstate 84 Westbound Ramp/Main Street intersection is forecast to operate at level of service “F” and the Interstate 84 Eastbound Ramp/Main Street intersection is forecast to operate at level of service “D.”

The poor level of service at the two Interstate 84 ramps reflects delay to the left-turning ramp traffic; major street turning and through movements at the two intersections are forecast to operate at level of service “A.” It should be stressed that, although the left-turning vehicles will experience long delays, there is adequate capacity for left-turn movements (as evidenced by the volume/capacity ratio of 0.82).

Potential Capacity Improvements

Given the poor level of service forecast at the Interstate 84 Westbound Ramp/Main Street, the potential need for signalization of the intersection was examined based on the forecast future traffic volumes. Preliminary signal warrant analysis results suggest that a traffic signal may be warranted at the intersection within the 20-year planning horizon. The analysis further indicated that a northbound left-turn lane would be warranted at the intersection and that the westbound ramp may require widening to accommodate separate left- and right-turn lanes.

The decision to install a traffic signal at the Interstate 84 Westbound Ramp/Main Street intersection will be subject to several variables. Signalization alone is not likely to fully address the capacity needs of the interchange and adjacent intersections. Further, development of left-turn lanes at the interchange would require widening of the existing bridge deck, potentially necessitating a new interchange altogether. The effect of signalizing the Interstate 84 Westbound Ramp/Main Street intersection must also consider the impact signalization will have on adjacent intersections.

Further, while the initial level of service analysis results suggest that the intersections of North Main Street/Front Street and South Main Street/Front Street will operate acceptably, the analysis results should not be interpreted as suggesting that no operational problems will be encountered. Given the close spacing between the Interstate 84 ramps and the two respective frontage roads, it is expected that several geometric changes will be required to accommodate future traffic volume growth. Stated simply, the existing intersections are too closely spaced and will not function efficiently as traffic volumes grow. The lack of access management along Main Street further complicates intersection operations.

The potential need for, and placement of, geometric improvements and a traffic signal at the Interstate 84/Main Street interchange within the 20-year planning horizon will be further discussed in Section 4, **Alternatives Analysis**. That discussion will include consideration of north-south connectivity needs within the city, the potential affects of access management and/or geometric improvements, and signalization issues, as well as overall safety for both vehicles and pedestrians.

Finally, as discussed previously, many of the homes are located on the south side of the interstate whereas the majority of employment opportunities and services are located on the north side. This results in city residents having to cross the interstate on a daily basis, primarily at Main Street. If growth continues to occur as it has in the past, this problem will be exacerbated in the future and will further impact the operations at the Interstate 84/Main Street and Main Street/Front Street intersections. Alternative land use scenarios to address this problem and the need for a cohesive “downtown” in Boardman will be discussed further in Section 4, **Alternatives Analysis**.

With the exception of improvements to the Interstate 84/Main Street interchange area and the previously identified improvement needs at the Wilson Road/Main Street intersection, no additional roadway capacity-related mitigation measures are anticipated. The next section of the TSP presents an analysis of potential improvement alternatives that address existing and future forecast traffic conditions.

SUMMARY

Several significant findings were identified through the future conditions analysis, most notably:

- The City of Boardman’s population (including those persons in the UGA) is forecast to grow by an average annual rate of 2.3 percent (approximately 2,065 people) between 1997 (estimated population of 3,062) and 2020 (projected population of 5,129). Approximately 780 additional employment opportunities are anticipated in the city over the course of the 23-year horizon period.
- The population of Morrow County is projected to increase by an average annual rate of approximately 2.1 percent from an estimated population of 9,895 in 1997 to a projected population of 15,801 in 2020.
- The growth projections prepared for both the city and county suggest that the forecast growth will be substantial in the near-term and will moderate in the long-term.
- Growth in traffic volumes will require improvements to the City of Boardman’s existing roadway, pedestrian, and bicycle network. Areas identified for further investigation primarily involve the Interstate 84/Main Street interchange and the Main Street corridor.
- There are several connectivity and access issues that should be planned for and addressed. Enhancements to the city’s roadway, pedestrian, bicycle, and public transit systems are desirable and will be reviewed in Section 4, **Alternatives Analysis**.

