Studies and Coordination

On March 17, 1994, a scoping meeting was held to discuss the new requirement of a Major Investment Study (MIS) and how this project process was to meet this requirement. The purpose and need for this new study element stems from requirements to combine the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) long-range planning process to meet the changes in transportation planning and funding. The scoping meeting included representation from the FHWA, FTA, Spokane Transit Authority (STA), Spokane Regional Transportation Council (SRTC), Washington State Department of Ecology (Ecology), and the Washington State Department of Transportation (WSDOT).

The meeting's primary purpose was to discuss this new requirement and decide how to approach it. The major problem was that this National Environmental Policy Act (NEPA) document and related studies was already three years in the making. The discussion focused on what additional alternatives should be studied, how they were to be analyzed, and how and where this additional analysis was to be incorporated and presented in this document. This chapter includes discussion to fulfill both the NEPA requirements and the MIS. Each component of the transportation alternatives considered includes analysis as to how each can provide capacity to the system, or reduce demand.

SRTC completed implementation of its Congestion Management System (CMS) in November of 1994, with its inclusion in the Regional Transportation Plan. The CMS is used by SRTC as an integrated tool of the regional transportation planning program. Each year, SRTC collects data on travel patterns, traffic volumes, vehicle delay and transportation improvements. With this information SRTC updates the regional travel demand model to ensure existing conditions are always being reflected in current planning activities. Through this approach, the CMS provides ongoing updates to transportation planning.

The CMS is also used to identify areas where transportation congestion may be worsening or beginning to emerge as a result of land use or transportation investment decisions. By incorporating data collected through a CMS approach, SRTC is able to identify the possible impacts decisions will have on current and future traffic conditions. SRTC has determined that travel time within a corridor is a good key indicator for tracking congestion. Since congestion is a function of delay, changes in travel time can be closely correlated to performance on the regional transportation system. SRTC used this approach to integrate recommended TSM strategies into reports and plans of regionally significant projects to reduce or mitigate congestion.

As projects are constructed, SRTC is also able to determine the effectiveness of the applied congestion mitigation strategies. Instead of conducting costly before and after studies SRTC's approach of systematically collecting travel time and vehicle occupancy data on the CMS corridors provides a more long term method of managing and tracking congestion.

For long range transportation planning, the CMS provides the data necessary to test and confirm potential benefits of TSM/TDM and capital improvement projects. By modeling the regional transportation system to identify existing and forecasted deficiencies; annually incorporating projects that address identified deficiencies; and then collecting data on their effectiveness, (which is then incorporated back into the regional transportation model activities) a more effective regional transportation planning program is achieved.

Study Area Limits

The study area limits have evolved out of the findings and conclusions of previous studies. Studies from as early as 1946 show a need for traffic improvements on Spokane's north side. The 1985 Transportation Plan Update, in projecting the transportation needs of the Spokane metropolitan region, further refined and focused the need by recommending the construction of a "North Spokane Freeway" on Spokane's north side between Division Street and Havana Street. Division and Havana serve as the western and eastern limits of the study area, respectively. The northern limit is the US 395 crossing of the Little Spokane River. The southern limit is Interstate 90 (I-90). Both of these connect to limited access facilities.

Alternatives Considered

Alternative 1 — No-Build

Under the no-build action, a new North Spokane Freeway (NSF) would not be constructed. The existing area arterial system would be modified through construction of several minor capacity improvements and safety improvement projects, along with normal roadway maintenance.

The traffic modeling network for the no-build includes the following recent and future arterial improvements:

WSDOT Projects

- US 395 realignment and a new bridge across the Little Spokane River
- Division Street widening and Ruby Street couplet

Spokane County Projects

- North Side Arterial, Argonne Road/Bruce Road to US 395 Improvements
- South Valley Arterial

City of Spokane Projects

- Nevada Street Improvements
- Fancher Street Widening

Analysis of Impact on Capacity/Demand

The projects identified above serve as spot improvements addressing only relatively short-term needs. Each improvement adds a small amount of capacity to the system at the specific improvement location. The problem is that they all tend to increase

the demand on the existing north side arterials by channeling or attracting trips to the arterials with existing or projected capacity deficiencies.

Alternative 2 — Transportation System Management (TSM)

This alternative includes two areas: Transportation Demand Management (TDM) (Commute Trip Reduction (CTR), pedestrian and bicycle modes, transit) and operational management strategies (signal timing and interconnect).

Transportation Demand Management (TDM)

TDM addresses traffic congestion by focusing on reducing travel demand rather than increasing transportation supply. The objective is to increase transportation efficiency of the existing system. The focus is to reduce trips or accommodate trips in fewer vehicles. TDM alternatives include ride sharing, flextime, use of transit, walking, and bicycling, to name a few. The Commute Trip Reduction law is a key application of TDM strategies.

Adoption of the Washington State Growth Management Act (GMA) in 1990-91 has already resulted in enactment of ordinances and development of transportation management programs in Spokane. In keeping with the transportation agreement requirements of the Act, Spokane has implemented CTR legislation.

Washington State adopted CTR legislation in the spring of 1991. It requires counties with over ~~150,000~~ 200,000 population to develop plans, ordinances, and programs to reduce the average number of single occupant vehicles and the average trip length of commuters to work at major sites. In accordance with this law, an Oversight Committee was formed to oversee implementation of the CTR law, with representatives from affected cities, Spokane County, Spokane Transit, the SRTC, state government, and affected employees. The Spokane City Council passed the CTR Plan on February 1, 1993.

For Spokane, the Plan focuses on employers of 100 or more people who begin work between 6:00 a.m. and 9:00 a.m. during the regular work week at a single location. This effort is largely directed toward: (1) assisting employers in developing and implementing trip reduction plans for their employees, (2) promoting legislation to encourage use of transportation alternatives other than the single occupant passenger vehicle, and (3) coordinating trip reduction activities between governments. The CTR goals are to reduce the vehicle miles traveled per employee and single occupancy trips 15 percent by 1995, 25 percent by January 1, 1997, and 35 percent by January 1, 1999.

Analysis of Impact on Capacity/Demand

The effect on the existing system if all TDM programs were in place is hard to quantify. The primary impact is a reduction in demand on the system, due to reducing the number of vehicles using it. The following is an attempt to describe what might be expected with TDM programs in place, if they proved effective. Voluntary carpooling apart from commuting is very difficult to quantify and no attempt is made to include it in this analysis.

To determine the reduction in demand, several assumptions are made, including the assumption that the CTR program is meeting its goals. At the time of the 1992 CTR Survey, 78 affected employers fell under the CTR program in Spokane County. Table 2-1 uses the 1992 CTR Program Survey to establish a baseline for projection data. Of the 20,434 survey responses, 19,590 employees traveled during the critical hours of 6:00 to 9:00 a.m. Table 2-1 focuses on these employees.

	A	B	C	D	E	F
Mode	Existing % (Per the 1992 CTR Survey)	Existing Person Trips (Based on 19,590 Survey Response 6-9 a.m.)	Equivalent vehicle Trips (1.2* Average Occupancy Rate)	Projected** Increase and Distribution in Person Trips (with 35% SOV Reduction)	Distribution of total Person Trips (with 35% Reduction)	Equivalent Vehicle Trips (1.2* Average Occupancy Rate)
SOV Auto	82.8	16,220	16,220***	-5,677	10,543	10,543***
Carpool (2-person)	11.0	2,155	980****	3,633	5,788	2,631****
Bus/Transit	2.9	568	473	965	1,533	1,278
Vanpool	0.6	118	98	193	311	259
Bicycling	0.6	118	98	193	311	259
Walking	1.3	255	213	432	687	573
Other*****	0.8	156	131			
		261	417	348		
Total	100%	19,590	18,213	0	19,590	15,891

* Based on the 1990 U.S. Census of Population and Housing Summary Tape File # 3 Obtained by dividing the total number of workers by the total number of vehicles.
** Distribution of reduced SOV trips proportionally distributed between other modes.
*** SOV has single occupant.
**** Based on 2 person carpool Average occupancy 2.2.
***** Includes such things as telecommuting and taxi.

CTR Mode Split Data with Projections
Home Based Work (HBW) Type Trips One Direction
Table 2-1

Based on Table 2-1, the projected number of one direction home based work (HBW) commute vehicle trips generated by the current number of affected employers would be about 18,213 vehicle trips (Column C) between the hours of 6:00 a.m. and 9:00 a.m. Considering the 35 percent reduction mandated by 1999, the program would reduce the total number of single occupancy vehicle (SOV) person trips by about 5,677 (Column D). These trips would be absorbed by other modes of travel. Table 2-1 distributes the 5,677 person trips proportionally among the other modes.

In 1999, the CTR program would result in a total vehicle trip reduction of about 2,322 (Column C-F) for the three-hour period under examination. Spokane County trip data, provided by SRTC, shows about one third of these HBW trips would occur during the p.m. peak hour. Considering this, only 774 of the total 2,322 vehicle trips under the CTR program would occur during the targeted p.m. peak

hour. Employment growth projected for Spokane County between 1993 and 2020 is about 36 percent. Assuming that the CTR program would grow proportionally, the 774 vehicle trips would increase to about 1,053.

~~Before considering~~ Prior to applying the reduction by CTR the year 2020 is projected to have a p.m. peak hour vehicle trip total of 200,221. The CTR reduction of 1,053 p.m. peak vehicle trips equates to about a 0.5 percent reduction in demand over the system during p.m. peak hours.

A key variable that plays in the effectiveness of CTR is the distribution of employment locations. The best results for this project study area would need to assume that all trips generated by the affected employers were found to be in the avenues of traffic demand key to this study, particularly exchanges between the Spokane Valley and north suburban area. If this is assumed, then the full 0.5 percent would apply to the study area arterial system.

Pedestrian and Bicycle Facilities

A system of bikeways and pedestrian paths is a major part of the coordinated transportation system plan for the greater Spokane area. The plan has been established in Spokane's Bikeways Plan and SRTC's Pedestrian/Bikeway Systems Plan. Continued expansion of this system is expected under the no-build alternative.

Analysis of Impact on Capacity/Demand

Of the 20,434 Spokane County employees that responded to a 1992 CTR Program survey, the mode split showed that bicycling and walking accounted for 0.6 percent and 1.3 percent respectively, as a means of travel to and from work. The remaining 98 percent is assumed to be travel by vehicle.

In attempting to determine what impact expansion of the pedestrian and bicycle mode choices may have on the future roadway demand, the units of measure first must be equated. The walking and bike modes are considered as person trips. As noted above in previous discussions, the unit used in describing "demand" is vehicle trips. For 1993, the total daily vehicle trips equaled 1,496,510. Considering the p.m. peak hour equals about 9.12 percent of the total daily trips, then 136,482 vehicle trips occurred during the p.m. peak hour. The vehicle trips can be converted to person trips by a factor of 1.2, which represents the average vehicle occupancy rate for Spokane County during the p.m. peak hour. Based on this vehicle occupancy, the 136,482 vehicle trips convert to 163,778 person trips, which equate to the 98 percent figure mentioned above. The total number of person trips during the peak hour is projected to be about 167,120.

To establish a baseline, the CTR Survey figures of 0.6 percent for bicycles and 1.3 percent for walking are used to determine the existing person trips represented by each. Bicycles equal about 1,003 p.m. peak hour person trips and walking equate to approximately 2,172 person trips, for a total of 3,175. This is a total existing reduction in travel demand of about 2,645 vehicle trips during the p.m. peak hour.

The SRTC's Pedestrian/Bikeway Systems Plan has set a goal of a 10 percent increase for each of these mode choices. The 10 percent objective is to be reached by achieving yearly goals of increases of 1 percent. Each mode goal is expected to be reached between the years 2000 and 2003.

Based on these goals, the total p.m. peak hour person trips that would be made by these two modes, by the year 2003, equals about 3,507. If this same 1 percent per year (compounded) continued on to the project design year of 2020, the total p.m. peak hour person trips by these two modes would equal 4,154. Assuming all these person trips take place during the p.m. peak hour, a reduction in travel demand of 3,462 vehicle trips would result. This number is adjusted by 277 (one third of total 832 in Column F, Table 2-1), which are already accounted for under the CTR program above. The adjusted total trip reduction equates to 3,185 p.m. peak hour vehicle trips. This reduces the projected 2020 p.m. peak hour total of 200,221 vehicle trips to 197,036, a 1.6 percent reduction.

Bus Service

The STA is a regional transportation agency that provides service within a 961 square kilometer (371 square mile) area of Spokane County. STA operates within a Public Transportation Benefit Area (PTBA), which was formed in 1980, and provides fixed route service, para-transit service for people with disabilities (curb-to-curb or door-to-door for qualified individuals), and a comprehensive ride share program (car and vanpooling).

STA has a comprehensive program of expansion, including park and ride facilities, carpool and vanpool activities, para-transit, and fixed route additions. STA plans to focus expansion of ride share services on employment based marketing, with emphasis on major outlying employment centers not presently served by fixed route service.

Analysis of Impact on Capacity/Demand

According to the transportation mode split identified from the 1992 CTR Program survey, bus or transit accounted for about 3 percent of the total p.m. peak hour person trips. When applied to the 1993 total 163,778 p.m. peak hour person trips, 4,913 were by bus or transit.

The total ridership for an average weekday from 1990 to 1993 was examined to determine a growth rate. STA weekday average daily ridership increased from 23,700 to 26,800, which equates to an average increase of about 4.3 percent per year.

Assuming that an increase in p.m. peak hour ridership continues at the 4.3 percent rate, by the year 2020 the compounded increase would result in a STA p.m. peak hour ridership of about 15,311 persons. Assuming that all these new riders left their vehicles to ride transit, this increase of 10,398 equates to a reduction of 8,665 p.m. peak hour vehicle trip. (based on the average vehicle occupancy rate of 1.2 persons per vehicle). This number is adjusted by 426 (one third of 1,278 in Column F, Table 2-1) because they are already accounted for under the CTR program above. This equates to a reduction of 8,239 total p.m. peak hour trips for the year 2020 (from 200,221 to 191,982), or about 4.1 percent.

This analysis concludes with the assumption that Spokane's CTR goals will be met by 2020 with transit ridership increasing to approximately 6% during the afternoon peak period. The analysis is realistic in its assumption that average vehicle occupancy in the Spokane Region will not likely increase beyond 1.2. Since the

average vehicle occupancy is not expected to change over the 20 year construction period, then transit ridership modal split can be shown to have increased to 6%, [15,311/(200,211 x 1.2) = 6% transit ridership].

An additional perspective on this alternative is its relationship to mass transit. (See Alternative 3-Mass Transit) In the Spokane region any increase in high occupancy vehicles (HOV) occupancy is likely to result in a reduction in transit ridership. Transit riders will either switch to carpools or vice versa. This will result in little or no net change in the number of vehicles during the peak period.

Operation of the system as analyzed in this EIS indicates that regardless of the successful implementation of TSM measures and transit usage, roadways in the Spokane area are likely to continue to operate at LOS levels of E or F without the NSF. If the NSF is constructed, arterial LOS levels will be at or close to capacity upon completion of the freeway (2020) even if TSM measures are implemented and transit ridership is doubled.

Park and Ride Lots

STA currently has 12 lots in the Spokane area with an average size of 170 stalls. The park and ride lot/transfer center concept is an integral part of STA's long-range plan. To help keep pace with planned expansion of the STA system and help meet regional air quality goals, STA has identified 13 other potential lots and transit center locations. These serve as support facilities for transit, carpooling, and vanpooling functions. STA views the Spokane Region as multi-centered that is evidenced by transit centers located in the Spokane Valley and the central business district (CBD). Construction of the new park and ride lots are not dependent upon construction of the NSF and are planned to enhance the regional service provided by STA. They add to the viability of the TDM and transit alternatives ~~and~~ but are not figured to significantly impact capacity of or demand on the system on their own as trip reductions would be spread regionally. See the STA Comprehensive Plan for specific locations.

Operational Management Strategies

Operational management strategies are designed to help improve traffic flow on the existing arterial system. Traffic signal improvements generally provide the greatest payoffs for reducing congestion. Basic signal improvements considered include: updating the equipment, improving timing plans, and interconnecting signals. The city of Spokane is currently developing a plan for upgrading existing signal systems citywide.

Analysis of Impact on Demand/Capacity Needs

Reductions in arterial congestion can be realized if needed improvements are made to urban signalized intersections. Intersection improvements have a higher probability of affecting arterial speeds if the improvements occur at intersections that control congested arterials. Listed below are two types of improvements on different signal systems (based on project experience from around the United States, from Institute of Transportation Engineers' *A Toolbox for Alleviating Traffic Congestion*):

- Changing "Interconnected Pre-Timed Signals with Old Timing Plans" to "Advanced Computer Based Control" ~~can result in travel speed savings of 17.5 percent.~~
- Changing "Non-Interconnected Signals with Traffic-Actuated Controllers" to "Advanced Computer Based Control" ~~can result in travel speed savings of 16 percent.~~

These two specific types of traffic signal improvements were analyzed in an effort to assess travel speed improvements on the three congested arterials in the study area: Division Street, Nevada Street, and Market Street. The analysis was conducted for 1990 and 2010. It should be noted that although the traffic signal improvement analysis included the year 2010, the effective life of traffic signal improvements is probably around five to seven years.

The analysis was conducted by dividing each arterial into several links and examining the existing signal characteristics at the intersections. If the existing signal system could be improved, a capacity increase percentage was applied to that intersection location. ~~A 16 or 17.5 percent increase in intersection capacity benefit (from the above mentioned traffic signal synchronization improvements) was applied to applicable intersections.~~ Base average travel speed and enhanced average travel speed for each arterial link of the three arterials for both 1990 and 2010 were then determined.

The analysis of all three arterials showed a slight increase in link speed ~~as a result of intersection capacity increases along all three arterials~~ in both 1990 and 2010. The projected 2010 average percentage increase in operating speed for the overall arterial corridors ranges from no improvement on Division Street to about 2 percent on Hamilton/Nevada and 4 percent on Market/Greene. When considering the average arterial speeds outlined in Table 2-8, this demonstrated increase in speed is not significant enough to improve the overall Level of Service (LOS) for any of the arterials.

Summary of Alternative Analysis on Demand/Capacity

When the above components are in place and operational, the result is as follows:

Demand Reduction (applies to all systems)

TDM	0.5 percent
Pedestrian and Bicycles	1.6 percent
Bus Service	4.1 percent
Total	6.2 percent

Increase in system intersection capacity (applies only to selected intersections, see Table 2-7 for critical intersections where improvements were applied).

~~TSM - Signal Timing - and Synchronization 16%-17.5%~~

Alternative 3 — Mass Transit

The SRTC has initiated a series of studies to evaluate the potential development of High Capacity Transit (HCT) facilities and services to serve the Spokane metropolitan region. In June 1993, the High Capacity Transportation System Plan,

Phase 1, was completed. Phase II of this plan, "A Strategy for Implementation," was completed in July of 1994. The findings of these studies are the basis of discussion regarding this alternative.

This alternative would include facilities and services such as high occupancy vehicle (HOV) lanes/roadway, busways, rapid transit (light or heavy rail), and commuter rail.

HOV lanes/roadway are roadway lanes designated for exclusive use by vehicles of high occupancy (usually buses, vanpools, and carpools). They can be constructed in various configurations ranging from an exclusive separated facility to designation of a roadway lane for HOV use for at least a portion of the day.

Busways involve development similar to the HOV lanes/roadway identified above. Again, the focus is on high occupancy vehicle use.

Rapid transit includes what is referred to as Fixed Guideway Transit Systems. These systems can include both light and heavy rail, along with commuter rail.

- Heavy rail involves development of a system to support a multiple car train. This system is designed to handle a heavy volume of passengers, and characteristically operates on exclusive rights of way at high speeds. Heavy rail systems are often referred to as subways, metros, or elevated (railways).
- Light rail transit (LRT) is a medium capacity system. It can operate on either grade-separated, reserved right of way or in mixed traffic on city streets. The latter operation is commonly known as a streetcar service.
- Commuter rail is a service that generally operates between the "downtown" and the suburban areas of a metropolitan region. This system operates on mainline rail lines, using high speed locomotives or self-propelled cars in multi-car trains. It operates on a station to station fare under railroad employment practices.

HOV Lanes

The HCT Phase II recommended, first, that a monitoring program be established for each of the prospective HOV corridors to help in the timing for establishment of the HOV lanes. A second important element was development of a marketing program to heighten the public's awareness of the HCT system's role in the transportation system. Specific recommendations regarding HOV lanes were:

- East Corridor:

  HOV lanes on I-90 between Monroe/Lincoln and Liberty Lake Interchanges.

  HOV lanes on the South Valley Arterial to University, including any extension to Liberty Lake.

- North Corridor:

  HOV lanes could prove beneficial on Division in the distant future. They should be considered if the monitoring program shows a need. Because of the type of facility Division Street is, and the type of traffic (largely commercial) that uses it, the effectiveness and functionality of HOV lanes are in question and would require in-depth analysis.

Analysis of Impact on Capacity/Demand

The east corridors will serve as avenues to move traffic more efficiently to and from the Central Business District (CBD) and to feed Spokane's north side arterial corridors. It is difficult to predict how demand reduction experienced on the eastern corridors will actually impact the north side. Some minor reduction in demand would be expected. However, with no HOV facility in place, the north side arterial system could actually deter HOV participation by those traveling to and from the east and north.

The HCT study identifies Division Street for possible HOV use. Several threshold requirements are necessary to make HOV lanes successful (Washington State Freeway HOV System Policy, November 1991): recurring congestion, time savings to those using the HOV lane, support facilities in place, public support, and system continuity.

Recurring congestion will exist on Division Street in the design year 2020. LOS projections show that of 12 intersections analyzed, 11 will be operating at LOS F in the 2020 no-build condition. The problem with HOV lanes on Division Street is in providing the time savings necessary to attract users.

An HOV lane will not attract new users unless users experience a 30 second to one minute per mile time savings (at least five minutes overall) when compared to the adjacent SOV general purpose traffic. This is very difficult to accomplish on a street such as Division, due primarily to the physical characteristics of the facility. Division Street is a commercial corridor attracting consumers from all over the area. The stop-and-go nature of the traffic system, the frequency of driveway access location, and bus stops, make providing a safe facility that gives time savings very difficult without substantial changes in traffic circulation. Obtaining public support, and particularly the support of business owners, will be difficult.

If all of the above conditions were in place and an HOV facility was constructed on Division Street, what would this mean for traffic demand under ideal conditions? Ideal conditions would mean the system provides the safety and time savings necessary for it to be effective. For this analysis, several criteria were assumed:

- The type of HOV facility would be of concurrent flow (one or more lanes operate in the same direction as the adjacent general-purpose traffic lanes).
- The HOV lane would be operational only during the a.m. and p.m. peak hours of congestion. At all other times, the lane would be open to all traffic.
- Division Street, considered a four to six lane facility, would require use of an existing lane for the use of HOV. The nature and expense of the right of way along Division Street does not make it practical to consider adding additional lanes for the purpose of HOV.
- Under the HCT Phase II System Plan, in order for the HOV lane to be considered effective, the number of persons using the HOV lane must equal or exceed the number of persons using the individual adjacent general purpose vehicle lanes.

Tables 2-2 and 2-3 outline what could be expected if an HOV lane were to be constructed on Division Street from approximately Main Street to the Division

Street/US 2 "Y." The tables depict results under both a two and three person minimum occupancy requirement. It should be emphasized that the percentage reductions would apply only during the peak hours; that is, the hours of operation. The effect of the HOV lane would be very localized when considering the entire north side roadway system. Table 2-10, under the heading of "Mass Transit," identifies where and how the traffic demand reduction would impact the system. The results shown would apply under ideal conditions, and assume a two person minimum occupancy requirement.

As discussed under Alternative 2, improvements under mass transit are related to an altering of TSM measures. In the Spokane region any increase in HOV occupancy is likely to result in a reduction in transit ridership. Transit riders will either switch to carpools or vice versa. This will result in little or no net change in the number of vehicles during the peak period.

Given current commuting, land use patterns, and cultural values in Spokane, and based upon the experiences of other regions in their operations of HOV lanes, it is not likely that average vehicle occupancy in Spokane will increase much above 1.2.

It should also be noted that the NSF EIS must always be taken in context with the Regional Transportation Plan (RTP). The RTP discusses HOV lanes in detail, and recommends thresholds at which HOV lanes would become viable options in Spokane (see page 3-86 Spokane HCT Phase from the regional transportation plan for thresholds on Division Street). At the present time there are no indications that HOV use will reach these levels within the EIS horizon.

Bus Service and Park and Ride Facilities

This component of the Mass Transit alternative involves a bus system that would build on that described above under TSM, to include corridors where routes would connect mixed use activity centers as outlined in the HCT Study Phase II. It is difficult to quantify the increase in bus use on the basis of this additional development. In most cases, the increase would be corridor specific. For this analysis, the calculations of projected ridership increases presented above have been applied. This means that if the projected growth in ridership continues, by the year 2020 bus ridership would reduce total p.m. trips within the study by about 4.1 percent.

Fixed Guideway Transit

Phase II of the HCT determined that heavy and commuter rail technologies are not appropriate for Spokane, because the land use density is not high enough to support the large passenger capacities that are provided. Automated guideway transit systems are also not appropriate, because the corridors such as I-90 or Sprague are too long for this technology to serve effectively. The focus of the study then became LRT technology.

The HCT has identified only an eastern corridor as feasible, based on opportunities for necessary mixed land use and higher density development. The north side of Spokane is considered not to provide the same opportunities, due to the existing low densities and commercial sprawl.

		PM PEAK TRIPS	NO. LANES EACH DIRECTION	AVERAGE OCCUPANCY	TOTAL PERSON TRIPS	*REDUCTION IN VEHICLE TRIPS (Number/ %)
TRENT AVE. TO MISSION AVE.						
WITHOUT HOV LANES						
	SOUTHBOUND	2930	4	1.2	3516	
	NORTHBOUND	3392	4	1.2	4070	
WITH HOV LANES						
SOUTHBOUND						
	SOV	2198	3	1	2198	
	HOV (2+)	599	1	2.2	1319	
	TOTAL	2797	4	1.26	3516	133 4.55%
NORTHBOUND						
	SOV	2544	3	1	2544	
	HOV (2+)	694	1	2.2	1526	
	TOTAL	3238	4	1.26	4070	154 4.55%
MISSION AVE. TO N. FOOTHILLS						
WITHOUT HOV LANES						
	SOUTHBOUND	2738	4	1.2	3286	
	NORTHBOUND	3985	4	1.2	4782	
WITH HOV LANES						
SOUTHBOUND						
	SOV	2054	3	1	2054	
	HOV (2+)	560	1	2.2	1232	
	TOTAL	2614	4	1.26	3286	124 4.55%
NORTHBOUND						
	SOV	2989	3	1	2989	
	HOV (2+)	815	1	2.2	1793	
	TOTAL	3804	4	1.26	4782	181 4.55%
N. FOOTHILLS TO WELLESLEY AVE.						
WITHOUT HOV LANES						
	SOUTHBOUND	2100	3	1.2	2520	
	NORTHBOUND	2500	3	1.2	3000	
WITH HOV LANES						
SOUTHBOUND						
	SOV	1575	3	1	1575	
	HOV (2+)	430	1	2.2	945	
	TOTAL	2005	4	1.26	2520	95 4.55%
NORTHBOUND						
	SOV	1875	3	1	1875	
	HOV (2+)	511	1	2.2	1125	
	TOTAL	2386	4	1.26	3000	114 4.55%
WELLESLEY AVE. TO FRANCIS AVE.						
WITHOUT HOV LANES						
	SOUTHBOUND	2332	3	1.2	2798	
	NORTHBOUND	3066	3	1.2	3679	
WITH HOV LANES						
SOUTHBOUND						
	SOV	1749	3	1	1749	
	HOV (2+)	477	1	2.2	1049	
	TOTAL	2226	4	1.26	2798	106 4.55%
NORTHBOUND						
	SOV	2300	3	1	2300	
	HOV (2+)	627	1	2.2	1380	
	TOTAL	2927	4	1.26	3679	139 4.55%
FRANCIS AVE. TO DIVISION/US 2 "Y"						
WITHOUT HOV LANES						
	SOUTHBOUND	1666	3	1.2	1999	
	NORTHBOUND	2670	3	1.2	3204	
WITH HOV LANES						
SOUTHBOUND						
	SOV	1250	3	1	1250	
	HOV (2+)	341	1	2.2	750	
	TOTAL	1590	4	1.26	1999	76 4.55%
NORTHBOUND						
	SOV	2003	3	1	2003	
	HOV (2+)	546	1	2.2	1202	
	TOTAL	2549	4	1.26	3204	121 4.55%

* Reduction = PM Peak Hour Trips without HOV - PM Peak Hour Trips with the HOV lanes

Division Street HOV Lane-2020 PM Peak Hour Trips
Two Person Minimum Occupancy - Spokane River to the Division/US 2 "Y"
Table 2-2

		PM PEAK TRIPS	NO. LANES EACH DIRECTION	AVERAGE OCCUPANCY	TOTAL PERSON TRIPS	*REDUCTION IN VEHICLE TRIPS (Number/ %)
TRENT AVE. TO MISSION AVE.						
WITHOUT HOV LANES						
SOUTHBOUND		2930	4	1.2	3516	
NORTHBOUND		3392	4	1.2	4070	
WITH HOV LANES						
SOUTHBOUND						
	SOV	2198	3	1.07	2351	
	HOV (2+)	376	1	3.1	1165	
	TOTAL	2573	4	1.37	3516	357 12.18%
NORTHBOUND						
	SOV	2544	3	1.07	2722	
	HOV (2+)	435	1	3.1	1348	
	TOTAL	2979	4	1.37	4070	413 12.18%
MISSION AVE. TO N. FOOTHILLS						
WITHOUT HOV LANES						
SOUTHBOUND		2738	4	1.2	3286	
NORTHBOUND		3985	4	1.2	4782	
WITH HOV LANES						
SOUTHBOUND						
	SOV	2054	3	1.07	2197	
	HOV (2+)	351	1	3.1	1088	
	TOTAL	2405	4	1.37	3286	333 12.18%
NORTHBOUND						
	SOV	2989	3	1.07	3198	
	HOV (2+)	511	1	3.1	1584	
	TOTAL	3500	4	1.37	4782	485 12.18%
N. FOOTHILLS TO WELLESLEY AVE.						
WITHOUT HOV LANES						
SOUTHBOUND		2100	3	1.2	2520	
NORTHBOUND		2500	3	1.2	3000	
WITH HOV LANES						
SOUTHBOUND						
	SOV	1575	3	1.07	1685	
	HOV (2+)	269	1	3.1	835	
	TOTAL	1844	4	1.37	2520	256 12.18%
NORTHBOUND						
	SOV	1875	3	1.07	2006	
	HOV (2+)	321	1	3.1	994	
	TOTAL	2196	4	1.37	3000	304 12.18%
WELLESLEY AVE. TO FRANCIS AVE.						
WITHOUT HOV LANES						
SOUTHBOUND		2332	3	1.2	2798	
NORTHBOUND		3066	3	1.2	3679	
WITH HOV LANES						
SOUTHBOUND						
	SOV	1749	3	1.07	1871	
	HOV (2+)	299	1	3.1	927	
	TOTAL	2048	4	1.37	2798	284 12.18%
NORTHBOUND						
	SOV	2300	3	1.07	2460	
	HOV (2+)	393	1	3.1	1219	
	TOTAL	2693	4	1.37	3679	373 12.18%
FRANCIS AVE. TO DIVISION/US 2 "Y"						
WITHOUT HOV LANES						
SOUTHBOUND		1666	3	1.2	1999	
NORTHBOUND		2670	3	1.2	3204	
WITH HOV LANES						
SOUTHBOUND						
	SOV	1250	3	1.07	1337	
	HOV (2+)	214	1	3.1	662	
	TOTAL	1463	4	1.37	1999	203 12.18%
NORTHBOUND						
	SOV	2003	3	1.07	2143	
	HOV (2+)	342	1	3.1	1061	
	TOTAL	2345	4	1.37	3204	325 12.18%

* Reduction = PM Peak Hour Trips without HOV - PM Peak Hour Trips with the HOV lanes

Division Street HOV Lane-2020 PM Peak Hour Trips
Three Person Minimum Occupancy - Spokane River to the Division/US 2 "Y"
Table 2-3

The study evaluates the feasibility of an east corridor specifically aligned with the South Valley corridor. The route would make use of the former Milwaukee Railroad right of way, a county-owned corridor south of Sprague Avenue, extending from Argonne Road to Liberty Lake.

The study suggests a conceptual first phase HCT system. This first phase would have two elements: the first would be a central business district circulator system, and the second would be a line serving the eastern portion of the metropolitan region extending to Liberty Lake.

The central business district circulator would be about 2 miles in length and serve to connect principle retail, office, public, and county buildings, and the Spokane ~~coliseum~~ Arena north of the river.

The eastern line segment would begin at the Amtrak Station on Sprague Avenue and divert to the abandoned Milwaukee Railroad right of way near Division Street. The LRT line would be about 8 miles long, terminating at Liberty Lake as the easterly limit. It would make stops at major employment and retail centers along this route.

Analysis of Impact on Capacity/Demand

The timing of the light rail system is not clearly defined in the HCT study. The planning being done now is to establish the regional direction as to what needs to be done and how to accomplish it. If the light rail system were to be developed, it is projected to do little in reducing the demand or increasing the capacity on the north side arterials, due to its location. It may, in fact, increase demand by drawing trips to the CBD because of the light rail connection to the east.

Summary of Alternative Analysis on Demand/Capacity

The result when the above HOV component is in place and operational is as follows:

Demand Reduction

HOV Lanes 4.55 percent

Note: HOV lane reduction applicable to the northbound and southbound peak hour directional legs for Division Street intersections only.

Reduction applied to Division Street intersections within the limits of the HOV lane. Limits extend from the vicinity of the Spokane River to the Division Street/US 2 “Y.”

Percentage is based on the assumption that the establishment of the HOV lane will initially employ a two person minimum vehicle occupancy rate.

Bus Service 4.1 percent (applied systemwide)

Build Alternatives

Over the last eight years, government jurisdictions in Spokane County, through the SRTC, have analyzed various alternative routes for what was then called the North Spokane Freeway. Route alternatives have spanned the area between Government Way on the west edge of the city as the western-most route and Argonne Road in