

II. ABSTRACTS OF PREVIOUS STUDIES

Over the last several years, studies have been conducted that have formed the basis of regional transportation policy for Clark County in the Portland/Vancouver bi-state region. There are also studies that have provided the technical support for policy decisions and have provided data about travel needs within the County.

Section A contains abstracts of studies that have formed regional transportation policy, Section B contains abstracts of other transportation studies, and Section C is a comprehensive listing of transportation related documents and resources that may be of interest to committee members.

A. Abstracts of Documents Affecting Regional Transportation Policy

Name: Columbia River Crossing Accessibility Study ✓
Conducted by: Intergovernmental Resource Center for the Legislative Transportation Committee
Date: December 1988

Purpose: To evaluate future travel accessibility across the Columbia River and develop a potential scope of work for a future study analyzing the economic, environmental, and engineering feasibility of a future river crossing.

Summary: The study determined that travel demand across the Columbia River would exceed the capacity of the I-5 and I-205 bridges by the year 2010 and raised the prospect of a third bridge and freeway corridor through the region as well the potential for light rail transit.

Name: Clark County High Capacity Transit Analysis Final Report ✓
Conducted by: Intergovernmental Resource Center for C-TRAN
Date: November 1991

Purpose: To determine the most appropriate high capacity transit (HCT) options and alignments that address internal Clark County and bi-state regional travel needs.

Summary: The study examined the suitability of high capacity transit in the I-5, I-205 and Fourth Plain Corridors and concluded: 1) All HCT options, including light rail, should be evaluated further in the bi-state Pre-Alternatives Analysis studies for the I-5 corridor. I-5 light rail ridership is the highest among HCT options; 2) All HCT bus options should be evaluated further in Pre-Alternatives Analysis studies for the I-205 corridor; the Fourth Plain corridor should not receive further consideration for light rail.

Name: I-205 Glenn Jackson Bridge LRT Retrofit Study Summary Report
Conducted by: Intergovernmental Resource Center for C-TRAN
Date: December 1991

Purpose: To determine if the I-205 Glenn Jackson Bridge could structurally support busway or light rail operations and assess high capacity transit connections at the Gateway Transit Center for light rail, exclusive busway, and enhanced bus service.

Summary: The I-205 bridge can structurally support busway or light rail operations; electrification for light rail could be designed to avoid damage to the bridge structure due to stray currents; a transfer at Gateway Station is the most plausible service option. I-205 light rail transit (LRT) and four travel lanes in each direction could only be accommodated by removing the current inside and outside emergency lane shoulders. With LRT and only three travel lanes the existing emergency lane shoulders could be retained.

Name: Bi-State Transportation Study
Conducted by: Intergovernmental Resource Center and Metropolitan Service District
Date: November 1992

Purpose: To conduct an assessment of current and future transportation operations and conditions in the I-5 and I-205 freeway corridors linking the Portland and Vancouver metropolitan area, and identify potential short and long term improvements to maintain mobility in the corridors.

Summary: The I-5 corridor recommendations included the consideration of making improvements in the I-5 corridor to balance capacity along the corridor. The analysis assumed light rail transit in the I-5 corridor, but also called for additional improvements along I-5 and I-205 to improve traffic operations and safety. These included auxiliary lanes, ramp metering, and ramp improvements and connections.

Name: South/North Transit Corridor Study Priority Corridor Analysis
Conducted by: Metro
Date: March 1993

Purpose: To evaluate and recommend for further study a priority high capacity transit corridor from Clark County to Clackamas County. This analysis includes the consideration of both the I-5 and I-205 corridors. It resulted in the basis for the selection of I-5 as the first priority for high capacity transit in Clark County.

Summary: The analysis determined that construction costs for high capacity transit on I-5 are higher than for I-205 but that these costs are more than offset by higher ridership. Additionally, the I-5 corridor was found to have a higher number of current and projected households and employment, higher LRT ridership, and a higher level of roadway congestion.

Name: Tier I Technical Summary Report
Conducted by: Metro
Date: September 1994

Purpose: To provide a summary of the technical information developed to facilitate the South/North Tier I alignment and terminus choices.

Summary: The report formed the technical basis of the recommendation by the C-TRAN Board of Directors and Metro Council to pursue the South/North project in two study phases:

- (a) Phase I to consider a light rail project between the Clackamas Town Center area and the 99th Street area in Clark County.
- (b) Phase II to consider an extension of Phase I light rail south to Oregon City and north to the 134th Street/Washington State University area.

Name: Tier I Final Report - Final Recommendations

Conducted by: Metro

Date: November 1994

Purpose: The reports identifies the South/North Light Rail Transit terminus and alignment alternatives to be advanced into the Draft Environmental Impact Statement. It also addressed policies and actions related to other aspects of the South/North Transit Corridor Study.

Summary: The report contains the recommendation by the C-TRAN Board of Directors and Metro Council to pursue the South/North project in two study phases:

- (a) Phase I to consider a light rail project between the Clackamas Town Center area and the 99th Street area in Clark County.
- (b) Phase II to consider an extension of Phase I light rail south to Oregon City and north to the 134th Street/Washington State University area.

B. Additional Transportation Document Abstracts

Name: Columbia River Crossing Study

Conducted by: BRW for Tri-Met

Date: December 1993

Purpose: To evaluate three light rail alternatives for crossing the Columbia River including a low level movable span bridge, a high level fixed span bridge, an immersed tube tunnel and a bored tunnel.

Summary: The study developed preliminary information regarding engineering feasibility, cost, and potential alignment of the crossing alternatives and determined that a tunnel option is significantly more expensive than a high span or movable span bridge.

Name: River Transit Feasibility Report (DRAFT)

Conducted by: Tri-Met

Date: January 1994

Purpose: To examine three alternative forms of river transit service from Oregon City to St. Johns along the Willamette River and to Vancouver along the Columbia River and to compare those alternatives to current modes of public transportation.

Summary: The study found that river transit was not competitive with other forms of public transportation in the metropolitan region. The high operating cost combined with the low ridership for river transit did not justify the level of public transportation investment. The low ridership estimates are attributed to the lack of population and employment densities along the river required to support this form of transit.

Name: I-205 Corridor Plan

Conducted by: Tri-Met

Date: June 1994

Purpose: This report resulted from the bi-state policy decision that selected I-5 as the next priority corridor for light rail transit. It focused on both short and long term needs for transit improvement in the I-205 corridor.

Summary: The report presents potential transit service and bus priority treatments that could be implemented in the I-205 corridor. It is designed to improve transit service and travel times to transit centers, park and ride lots, and major activity centers in the corridor, including Vancouver Mall, Portland, Airport, Gateway, and Clackamas Town Center. This facilitates connections between Clark County, Portland, and Clackamas County.

Name: South/North Transit Corridor Study, Draft Findings Report - Clark County: I-5/Highway 99 Alignment Alternatives

Conducted by: Parsons Brinckerhoff for Tri-Met

Date: July 1994

Purpose: To provide data to evaluate and refine light rail alignment alternatives in the portion of the South/North Corridor north of the NE 39th Street interchange to NE 134th Street, along the I-5 Corridor in Clark County. These data were developed to allow comparison of the I-5 and Highway 99 alignments in selecting an alignment to receive further analysis in the Draft Environmental Impact Statement.

Summary: Three conceptual alignments (east side of I-5, west side of I-5 and Highway 99) were examined. Based on the analysis, both I-5 alignments were found to have significantly fewer displacements and lower capital costs than the Highway 99 alignment.

Name: Interstate 5 - Main Street to Interstate 205, Environmental Impact Statement

Conducted by: Washington State Department of Transportation

Date: February, 1989

Purpose: To conduct an environmental analysis of proposed improvements along Interstate 5.

Summary: This EIS analyzed the environmental impacts of widening of Interstate 5 from 4 to 6 lanes from Main St. in downtown Vancouver to the junction at Interstate 205 north of Vancouver. In addition the document included analysis of a new interchange at NE 99th St. in Vancouver.

Name: SR 500 Design Analysis Report, Interstate 5 to SR 503

Conducted by: Washington State Department of Transportation

Date: January, 1993

Purpose: The purpose of this study was to assess existing and future conditions along SR-500.

Summary: This study reported on the following: existing conditions, existing capacity analysis and level of service in 1991, future capacity analysis and level of service in 2010, collision history, evaluation of system alternatives and mitigated capacity analysis and recommendations.

Name: Park and Ride Study for Clark County, Washington
Conducted by: The Intergovernmental Resource Center
Date: November, 1991

Purpose: To analyze park and ride activity in Clark County and recommend changes to the regional park and ride system.

Summary: This study provided recommendations on park and ride facilities by analyzing travel demand forecasts, travel sheds and demand distribution. Transit flyer stops are evaluated along I-205. Bike plans and bicycle policies are also reviewed.

Three areas found to support additional park and ride demand were the I-5 corridor between central Vancouver and NE 99th Street, the I-205 corridor in the vicinity north of Vancouver Mall and NE 99th Street, and in east county north of SR-14 and east of 164th Avenue.

Name: Columbia River Bridge Traffic Reports
Conducted by: Southwest Washington Regional Transportation Council
Date: Current, updated annually

Purpose: This report is intended to provide historical data on Columbia River Bridge traffic from 1961 to the present.

Summary: The report contains graphs and tables of traffic volumes, by bridge, of daily volumes, average weekday, AM and PM peak and peak direction splits, and average annual 24 hour and peak hour traffic summaries.

Name: Vancouver Urban Area Transit Overlay District
Conducted by: City of Vancouver and Clark County
Date: May 1995

Purpose: The Transit Overlay District Ordinance is intended to improve transportation opportunities by providing for transit and pedestrian friendly development environments and to ensure development patterns that are consistent with the vision as described in the Vancouver Urban Area Comprehensive Plan.

Summary: One of the distinguishing features of the new Vancouver Urban Area Comprehensive Plan is the Transit Overlay District (TOD), which emphasizes development of a vibrant urban core. The TOD includes areas surrounding downtown Vancouver, Vancouver Mall, the new Washington State University campus near Northeast 134th Street, and the major corridors connecting these points.

Within this roughly L-shaped district, specific land use, parking, and setback standards have been applied. The area is intended to be reminiscent of commercial main streets of years past, with development oriented toward streets rather than toward parking lots. The goal is to promote intensive residential and commercial development that is pedestrian-friendly and that enhances mass transit options.

This growth management implementation measure was adopted in December 1994 and revised in May 1995 by the Vancouver City Council and the Clark County Board of Commissioners. Currently staff is reviewing implementation issues of this ordinance and will likely be proposing modifications in early 1996.

Name: Vancouver Urban Area Visual Preference Survey
Conducted by: City of Vancouver, Clark County and C-TRAN. Consulting services provided by A. Nelessen Associates, Inc.
Date: March 1993

Purpose: Establish aesthetic preferences related to land uses within the Vancouver urban area.

Summary: Several years ago, the City of Vancouver, in cooperation with Clark County and C-TRAN, initiated the community visioning process as a way of determining and focusing community opinion on some of the issues facing the city and urban growth area. The issues included downtown redevelopment, open space preservation, the river front and transit types and linkages.

The report, Vancouver Urban Area Visual Preference Survey, was part of a public process to define a vision for Vancouver's future. The process that created this report allowed and encouraged the community to evaluate the existing built and natural environment through a visual survey. Photo images of both local and similar places were shown to the community. The images include public buildings, houses, stores, parks, streets, open spaces and so on. Survey participants rated the images on a scale of +10 to -10.

Through these surveys, a vision for the community could be extrapolated. The vision included statements about open space, the waterfront, downtown, other centers, mixed use development, multi-family residential development, residential streets, street edges, and transit. These statements were then developed into policy statements in the comprehensive plan.

Name: Mill Plain Extension Environmental Assessment
Conducted by: City of Vancouver
Date: May, 1994

Purpose: The Mill Plain extension will provide a second bridge access into the Port of Vancouver along 15th Street/Mill Plain corridor. This new street will connect the Port of Vancouver and recreational areas of Vancouver Lake and Frenchman's Bar with the downtown and I-5. Without this important corridor significant portions of industrial land in the Port cannot develop.

Summary: After two and one half years of effort, the Federal Highway Administration provided the environmental clearance to proceed with the project. Staff is currently working to conclude a funding search for the project.

The project will widen 15th Street, west of Franklin Street, providing two travel lanes with a landscaped median and bike lanes. In addition, a sidewalk will be constructed along the north side of Mill Plain for the neighborhood and a wide path/trail along the south. All access to minor streets will be closed off and left turn pockets provided at the collector streets into the neighborhood.

Name: Clark County and City of Vancouver Capital Facilities Plans
Conducted by: Clark County and the City of Vancouver
Date: 1994

Purpose: The purpose of this study was to tabulate potential transportation improvement projects based on local analysis of projected 20 year (or six year) travel demand.

Summary: This is a list of projects by roadway segment and by jurisdiction of the identified transportation deficiency, the proposed project planning-level cost estimate, and the likely funding sources.

Name: Level of Service Standards for Clark County Jurisdictions

Conducted by: Clark County Department of Public Works

Date: August, 1994

Purpose: This report documents the work of the Clark County Level-of-Service Committee which developed level-of-service standards for Clark County transportation facilities.

Summary: The Committee considered the various approaches to the issue of concurrency and level-of-service (LOS) used by jurisdictions in areas of the country which have experience with Growth Management. From that experience and discussions with various "stakeholders" (e.g., business community, Chamber of Commerce, Clark County Homebuilders, Growth Management TAC, and CAC) the Committee made a recommendation of a "tiered" LOS system for the Vancouver Urban Area which allows for a lower LOS in designated "major intermodal transportation corridors" and the maintenance of a higher LOS on facilities that do not serve the identified major centers (Downtown, Vancouver Mall, and WSU/Mt. Vista).

Name: Safe Walkways for Clark County, 1993-98 Walkway Construction Program

Conducted by: Clark County Department of Public Services

Date: February 1993

Purpose: This report documents the work of the Clark County Safe Walkways Task Force in developing a priority ranking of walkways projects in the unincorporated urban area of Clark County.

Summary: The Task Force worked with staff to develop a ranking system that gave priority for walkway project funding to those locations with identified pedestrian safety deficiencies and access and mobility impediments, subject to two policies: (1) finish projects already started and (2) give higher priority to projects with greater cost efficiencies (e.g., having grant funding, right-of-way already acquired). This report is in the process of being updated and a 1995 study should be available in November or December.

Name: C-TRAN Ridership Fact Book, 1985-1994

Conducted by: Southwest Washington Regional Transportation Council

Date: 1995

Purpose: To provide C-TRAN ridership and related service statistics from 1985 through 1994.

Summary: This document describes service hours, passengers, passengers per hour, and subsidy per passenger for each route. This information is detailed by weekday, Saturday, Sunday/holiday, and by monthly statistics.

Name: Ridership Survey

Conducted by: Pulse Research, Inc. for C-TRAN

Date: January 1993

Purpose: To identify characteristics of current and potential users of C-TRAN services.

Summary: This document analyzes passenger survey responses which were collected between October and November of 1992. There is a comparison of weekday, Saturday and Sunday data, and of commuter, rural and urban data. Weekday and weekend data are also analyzed.

Passengers were asked to complete only one weekday survey and one survey for both Saturday and Sunday. A total of 5,637 surveys from respondents above the age of 12 were completed and returned.

Name: Latent Transportation Demand Study
Conducted by: Image Analysis, for C-TRAN
Date: February, 1995

Purpose: To assist C-TRAN in its understanding of the issues and factors that motivate residents to use or not to use public transit.

Summary: This document includes options and feedback from residents age 16 and over throughout Clark County. The following information is documented: public awareness of and sentiment towards C-TRAN as a provider of public transportation; factors that influence the decision to use or not to use C-TRAN; measurement of both riders' and non-riders' perception of how well C-TRAN serves the community; identification of commuter and ridership characteristics; measurement of public awareness regarding C-TRAN advertising and promotional activities; and identification of key demographic characteristics in Clark County.

Name: I-205 and East/West Arterials Study
Conducted by: Southwest Washington Regional Transportation Council
Date: Current - Completion scheduled in Spring 1996.

Purpose: Growth throughout the Burton and Cascade Park sub-regions has resulted in increased travel demand. Traffic congestion problems on I-205 are resulting in failure or near failure conditions at several locations, including I-205/Mill Plain interchange, Mill Plain/Chkalov intersection, I-205/SR-500 interchange and SR-500/112th Avenue intersection. The adopted Growth Management Act (GMA) comprehensive land use plans anticipate continued growth and will increase the need for improvements to the transportation system. Travel mobility and access needs will continue to increase on I-205, but become even more critical for the east/west arterial system that serves the Burton and Cascade Park areas.

The I-205 and East/West Arterials Study is bounded by the north side of SR-500 to the north, the south side of SR-14 to the south, the east side of Andresen Road to the west and the west side of 164th Avenue to the east. The study will address, in a multimodal context, solutions to the east/west arterial capacity and access issues, the I-205 interchange and capacity issues and the need to provide an additional east/west arterial interchange on I-205 between Mill Plain and SR-500.

A second phase of the study is anticipated that would extend the analysis from SR-500 to the junction of I-5 and I-205 to the north. This second phase would also address the high capacity transit corridor issues.

Name: Regional Park and Ride Study
Conducted by: Southwest Washington Regional Transportation Council
Date: Current - Completion scheduled for Spring of 1996

Purpose: The Park and Ride Study will address the transportation system in Clark County. It will examine transit demand related to specific origin and destination areas in the region. It will identify the capability of park and ride service to offer an alternative to the single occupant vehicle, and to accommodate commuter parking capacity outside dense activity centers.

The study will develop and evaluate a range of future park and ride system and service alternatives. The evaluation will include both joint use facilities and exclusive use facilities. Park and ride lot evaluation will examine security and function, including: commuter functions, development opportunities, van and car pooling functions, and satellite parking possibilities. The study will consider park and ride system needs with and without light rail transit.

C. Library of Other Transportation Related Documents

- HCT Environmental Assessment Phase I Final EIS, C-TRAN, March, 1993
- HCT Environmental Assessment Phase I Supplemental EIS, C-TRAN, June, 1993
- South/North Transit Corridor Study: Description of Wide Range of Alternatives Report, Metro, July 1993
- Tier I Evaluation Methodology Report, Metro, July 1993
- Appendix, Scoping Process Narrowing Report, Metro, October 1993
- Community Involvement Report, C-TRAN, October 1994
- South/North Transit Corridor Study Findings Transportation Management System Alternative, Metro, May 1995
- Appendix II Mode and Alignment Workshop, Metro
- South/North Transit Corridor Study - Design Images Program, Metro, November 1994
- Gateway LRT Capacity Technical Memo, Tri-Met
- Analysis of LRT Traffic Impacts: Vancouver CBD and CBD North, Tri-Met
- Light Rail Transit Representative Alternatives; Conceptual Design and Order of Magnitude Cost Estimate, Tri-Met, May 1994
- Southwest Washington Regional Freight Transportation Study, RTC
- Regional Traffic Count Manual, RTC, Current
- Vancouver Amtrak Station Study, RTC
- Transportation Management System Final Report, RTC
- Statewide Multimodal Transportation Plan, WSDOT
- I-5 - Seattle to Portland Inter-City ITS Corridor Study and Communication Plan, WSDOT
- SR-500 - Feasibility Study SR-5 to SR-503, WSDOT
- Service and Financial Plan Scenarios 1995, C-TRAN
- Proposed 1995 Bus Service Improvements, C-TRAN
- Central County Park and Ride Environmental Assessment, C-TRAN
- Vancouver Urban Area Mobility Management Element, Clark County and the City of Vancouver, 1994
- Six-Year Street Plan, City of Vancouver
- Neighborhood Action Plans (Ogden Neighborhood), City of Vancouver
- Vancouver Urban Area Parking Review Study, City of Vancouver
- Vancouver Urban Area Bicycle Plan, City of Vancouver
- Neighborhood Traffic Control Program, City of Vancouver
- Impact Fee Ordinance, City of Vancouver
- Downtown 2000 Five-Year Action Plan - Downtown Vancouver, City of Vancouver, May 1995
- Comprehensive Growth Management Plan - Transportation Element, Clark County, 1994
- Environmental Impact Statement: Comprehensive Growth Management Plans, Clark County 1994
- Clark County Capital Facilities Plan - Transportation, Clark County, 1994
- Clark County Trails and Bikeways Systems Plan, Clark County, 1992
- Six-Year Transportation Improvement Program, Clark County, 1994

- Rural Arterial Study, Clark County, 1994

UPDATE SINCE 1985

Add to this:

Look in MTP list of publications

GMA Plan list

Metro RTP update (does this have list?)

Metro's MPO Certification documentation

C-TRAN TDP

SECTION 5 - SUMMARY/RECOMMENDATIONS

Review and evaluation of HCT corridors and alignments revealed no significant issues or impacts regarding land use, wetlands, hazardous wastes and traffic. Right-of-way impacts include acquisition of residential and commercial properties for Busway and LRT alignments, particularly for the I-5 and 112th Avenue alignments. The primary variables between HCT options and alignments are cost and ridership.

5.1 SUMMARY

Options. Preliminary screening indicated that Busway, HOV and LRT were appropriate options for the I-5 and I-205 freeway corridors. In addition, LRT could be implemented along arterials, including Highway 99/Main Street, 112th Avenue and Fourth Plain Boulevard. Expanded Bus represents a systemwide improvement in service coverage and frequency, but no marked improvement in corridor operations or express service. Expanded Bus is therefore a base for HCT options.

Right-of-Way. HCT construction would be least expensive along the I-205 corridor where a large median exists and topography is less severe. Property acquisition in the I-205 corridor is primarily for park and ride lots. Construction along the I-5 corridor would be more difficult, particularly for LRT, due to significant grade changes. I-5 will be reconstructed during the 1990's, using most of the existing right-of-way. In most cases, HCT options can be implemented within remaining right-of-way; however, acquisition will be required adjacent to some interchange areas.

Ridership. Estimates indicate that Clark County ridership is comparable between I-5 and I-205 HCT options. However, total corridor ridership between Clark County and the Portland area is much higher for the I-5 corridor. I-5 Busway and LRT ridership is 50 and 38 percent higher, respectively, than the same options in the I-205 corridor.

Cost. Expanded Bus and HOV options display the lowest capital and operating costs, but the incremental increase in ridership is low. Therefore, cost comparisons focus on "Build" options, Busway and LRT. Considering average costs, LRT capital costs are approximately 43 percent higher than Busway capital costs for the I-5 Corridor and approximately 143 percent higher than Busway for I-205 corridors. However, Busway and LRT operating costs vary no more than 3 percent. I-5 LRT produces the greater increase in ridership at a lower incremental capital cost compared to a Busway option in the same corridor. Although the difference between I-205 LRT and Busway ridership is comparable to that for the I-5 corridor, LRT capital cost is significantly higher than that for the Busway option.

5.2 RECOMMENDATIONS

I-5. Based on ridership and cost results, I-5 and Highway 99 LRT alignments should be further evaluated in Transitional Studies. These HCT alignments appear to provide the highest ridership with comparatively lower capital costs. The following I-5 Corridor HCT issues should also be addressed:

- o Grade problems in the Burnt Bridge Creek and Salmon Creek areas
- o Cost of structure and retaining walls in the Burnt Bridge Creek area
- o Environmental impact of fill adjacent to I-5 north of 39th Street and north of 117th Street
- o A compromise I-5/Hwy 99 alignment alternative. This new alignment would follow the Highway 99 alignment from downtown to the I-5/Main Street interchange, then follow the west side of I-5 north to 179th Street.

- o More detailed ridership projections and review of model inputs. The impact of park and ride availability along the I-5 alignment should be more closely reviewed as compared to a Highway 99 alignment which has significantly fewer adjacent park and ride spaces, but comparable ridership.
- o Cost of a new LRT crossing between Portland and Vancouver. For an I-5 alignment, this would most likely be a new bridge or a tunnel.
- o Coordination with Tri-Met plans. North/south corridor options for MAX LRT should be more closely reviewed to determine the alignment that will most appropriately address regional needs.

I-205. Further analysis of all HCT bus options in this corridor should be conducted. An HCT bus operation should complement I-5 LRT. Implementation of an HOV may be considered a short-range improvement, should I-205 traffic volumes increase to a point that bus operating speed is severely impacted. Pre-AA studies for the I-205 corridor will address expanded bus, HOV and busway.

Fourth Plain. This corridor should not be considered for LRT at this time. It is currently a strong bus route which provides excellent local distribution. Bus service improvements should be identified as the highest level of transit service for this corridor.