



## **I-5/Highway 99 Corridor HCT Discussion Paper for Task Force**

This presents the context and data for comparing HCT options in the I-5/Hwy 99 corridor. The HCT options could be considered either with or without express bus service in the corridor. The question about whether to maintain express bus service is fundamental in understanding how HCT might serve this corridor. If express bus service is a fundamental element of serving bi-state trips, that could change the role and function of providing HCT service in the corridor.

At the back are four policy questions that will help frame the discussion regarding the future role of HCT service in the I-5/Hwy 99 corridor.

### **Corridor Transportation Function**

- I-5
  - Longer-distance, higher speed trips
  - Large proportion of trips destined for Oregon
  - Interstate freight corridor
- Hwy 99
  - Access to commercial uses
  - Access to adjacent neighborhoods
  - Trips within and between adjacent neighborhoods

### **Corridor Land Use Context**

- I-5
  - Auto-oriented commercial uses concentrated near interchanges
  - Mix of single-family, multi-family and commercial between interchanges
  - West side more residential
  - East side primarily commercial between I-5 and Hwy 99
- Hwy 99
  - Auto-oriented commercial uses north of Chelatchie Prairie RR
  - Large surface parking lots serving most existing commercial uses
  - Good redevelopment opportunities based on underutilized parking and age of structures
  - The Highway 99 Subarea Plan and the Three Creeks Advisory Council may move in the direction of significant redevelopment in corridor

## **Corridor Transit Markets**

- Long-distance, high-speed service along I-5
  - Park-and-ride lots at 99<sup>th</sup> Street and Salmon Creek serving express service to downtown Vancouver and downtown Portland (Routes 47, 105, 134, 157, 190, 199)
  - 58% of 2030 transit trips in corridor destined for Oregon locations
- Local connections to commercial uses and major activity centers
  - Service on Hwy 99 serving commercial/residential uses south of 99<sup>th</sup> (Route 37)
  - Service on Hwy 99 connecting 99<sup>th</sup> P&R to Salmon Creek, Legacy Hospital and WSU (Route 19)

## **Express Bus Service in the I-5/Highway 99 Corridor**

Express bus service in the I-5/Hwy 99 corridor primarily serves commute trips to central Portland. HCT in this corridor would be planned and designed differently if the policy direction is to continue to serve the bi-state commute market with express bus service, compared to serving that market with HCT service.

With *express bus maintained*, HCT would be developed to serve primarily intra-county trips, likely with more frequent stops and with less concern regarding the need to maintain higher speed operations. With express bus service maintained, the HCT boardings would be significantly lower, the cost-effectiveness would be worse and there would be less likelihood to compete for federal New Starts or Small Starts funds.

With *express bus eliminated*, HCT would attempt to balance the needs of bi-state commute trips and local, intra-county trips. This concept would likely be designed to provide for higher speed with fewer stops. With express bus eliminated, the HCT boardings would be higher, the cost-effectiveness would be better and the corridor would have a better capability to compete for federal New Starts or Small Starts funds. HCT concepts analyzed without express bus service save approximately \$2 – \$2.5 million in operating costs per year.

The HCT analysis presented here is based on HCT operating without express bus service, unless otherwise noted.

## I-5/Hwy 99 Corridor HCT Strategy Options

This presents the four HCT mode concepts that were tested in this corridor, each was analyzed without express bus service.

### **Summary Data for I-5/Hwy 99 HCT Concepts**

	Daily Boardings on HCT Line (2030)	Annual Boardings on HCT Line (2030)	Capital Cost per Mile <sup>1</sup> (2008\$)	Annualized Capital Cost <sup>1</sup> (2008\$)	Annual Operating Cost <sup>2</sup> (2008\$) (change from CRC Base)	PM Peak Travel Time (2030 - from Portland CBD to Salmon Creek)
Hwy 99 BRT-Hybrid	8,720 – 9,860 (Scen. 1 & 5)	2.7 – 3.1 million	\$12.4 M	\$3.2 M	-\$0.6 M	58 min
Hwy 99 Streetcar	8,720 (Scen. 3)	2.7 million	\$37.2 M	\$11.9 M	\$1.1 M	58 min
Hwy 99/I-5 BRT-Full	11,020 (Scen. 4)	3.5 million	\$22.6 M	\$6.2 M	-\$0.7 M	51 min
Hwy 99/I-5 LRT	17,870 - 18,480 (Scen. 2A & 2B)	5.9 - 6.1 million	\$59.1 M	\$17.3 M	-\$1.3 M	47 min

<sup>1</sup>Capital cost includes only I-5/Hwy 99 Corridor HCT costs.

<sup>2</sup>Difference in systemwide operating costs from CRC Base. Assumes addition of HCT line to CRC Base transit network and removes duplicate local bus service and competing express bus service.

### Ability to Compete for FTA New Starts Funding

This is an initial, general assessment of the ability to compete for New Starts/Small Starts funding based on the system-level analysis prepared for the HCT System Study. The measures used here are not as detailed or accurate as required by FTA for a New Starts/Small Starts submittal nor are the HCT concepts optimized as they would be in a more detailed corridor analysis such as an Alternatives Analysis or EIS.

The data presented here can provide information on general trends but should only be considered to be representative of how an HCT concept might perform.

#### ***Cost-effectiveness – annual cost per boarding ride***

(annual operating cost + annualized capital cost / annual boardings)

Hwy 99 BRT-Hybrid	\$0.84 - \$0.93
Hwy 99 Streetcar	\$4.79
Hwy 99/I-5 LRT	\$2.62 – \$2.71
Hwy 99/I-5 BRT-Full	\$1.55

*Note: The ability to replace a significant amount of local and express bus service with a single HCT route provides a large operating cost savings in this corridor.*

## Land Use

### Hwy 99/I-5 Corridor

- Population density
  - Existing population density 3,700
  - 2030 GMA population density 6,100
  - FTA threshold for medium ranking **6,667**
  - Additional pop/households needed 567 pop/210 HH
- Number of jobs
  - Existing 31,100
  - 2030 GMA 37,500
  - FTA threshold for medium ranking **125,000**
  - Additional jobs needed 87,500

*Note: The number of jobs measure usually includes the major city CBD (i.e. Portland). Including downtown Portland and the Yellow Line corridor would put the overall corridor above the threshold. Clark County HCT options that are through-routed to downtown Portland would have a strong case to include downtown Portland and the Yellow Line corridor, however for HCT options that require a transfer to access downtown Portland, FTA would need to be convinced that jobs in Portland should be counted.*

### **Ability to compete for FTA New Starts funding - Preliminary Generalized Ranking**

#### **Description of Preliminary Generalized Rankings**

- Very Good – Highly likely to qualify and be competitive for funding
- Good – Strong possibility that it could qualify and be competitive
- Average – Some possibility to qualify and be competitive
- Poor – Outside chance to qualify and be competitive
- Very Poor – Little chance to qualify and be competitive

#### Hwy 99 BRT-Hybrid:

- Good cost-effectiveness
- Relatively low capital cost
- Land use currently falls short of FTA thresholds
- Hwy 99 Subarea Plan could help meet FTA land use requirements
- Transfer required to downtown Portland
- Poor rating in initial assessment for FTA funding if express buses are included.
- Average rating in initial assessment for FTA funding if express buses are not included, due to higher cost-effectiveness.

#### Hwy 99 Streetcar:

- Poor cost-effectiveness
- Land use currently falls short of FTA thresholds
- Hwy 99 Subarea Plan could help meet FTA land use requirements
- Transfer required to downtown Portland
- Very Poor rating in initial assessment for FTA funding.

#### Hwy 99/I-5 BRT Full:

- Good cost-effectiveness if express buses are not included.
- Moderate cost
- Land use currently falls short of FTA thresholds
- Hwy 99 Subarea Plan could help meet FTA land use requirements
- Transfer required to downtown Portland
- Very Poor rating in initial assessment for FTA funding if express buses are included, due to poor cost-effectiveness.
- Average rating in initial assessment for FTA funding if express buses are not included, due to higher cost-effectiveness.

#### Hwy 99/I-5 LRT:

- High capital cost
- Poor cost-effectiveness
- High cost means major local funding source required
- Adds needed park-and-ride capacity to CRC light rail
- Potential for good land use assessment based on Hwy 99 Subarea Plan and ability to count full corridor from downtown Portland
- Very Poor rating in initial assessment for FTA funding if express buses are included, due to poor cost-effectiveness.
- Poor rating in initial assessment for FTA funding if express buses are not included, due to higher cost-effectiveness.

### **Policy Questions**

1. **Serving Bi-State Trips** - With HCT service in the corridor, should we maintain express bus service in the I-5/Hwy 99 corridor as a primary method of serving bi-state commuters?

#### Pros

- One-seat ride service
- Good travel times (when there are no incidents on freeway)
- HCT service on Hwy 99 can focus on serving intra-county travel
- Ability to serve existing/planned park-and-ride lots

#### Cons

- Not reliable – subject to freeway congestion due to incidents
- Unnecessary added operating cost – HCT can serve bi-state travel
- Makes HCT less viable in corridor
- Limited bus capacity in downtown Portland

2. **Hwy 99 or West of I-5** - Should HCT stay in Hwy 99 all the way to Salmon Creek and not cross over to the west side of I-5?

#### Pros

- Would serve more adjacent land uses
- Provides better connection to activities in the Salmon Creek area

- Fewer environmental impacts in the vicinity of Salmon Creek crossing
- Fewer potential property impacts
- Less expensive

Cons

- Slower travel time than west of I-5 alignment
- Does not serve 99<sup>th</sup> Street P&R
- Lower ridership than west of I-5 alignment

3. **Light Rail Viability** - Is light rail a viable HCT mode in this corridor given the ridership and cost findings?

Pros

- One-seat ride service
- Good travel times
- Highest ridership mode in corridor
- Reliable service – exclusive guideway
- Ability to serve existing/planned park-and-ride lots
- Economic development opportunities along Hwy 99

Cons

- Very high cost
- Traffic impacts along Hwy 99

4. **Streetcar Viability** - Is streetcar a viable HCT mode in this corridor given the ridership and cost findings?

Pros

- Economic development opportunities along Hwy 99
- Ability to operate jointly on CRC LRT tracks

Cons

- Higher cost than BRT-Hybrid with similar ridership