

To HCT Team
Cc
From Steer Davies Gleave
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Project Portland HCT Project No. 22026001

Subject Detailed HCT Evaluation Framework -DRAFT FOR DISCUSSION

Overview

In order to select and prioritize the 'best' HCT corridors for investment a robust, coherent and transparent framework for the detailed evaluation of options is required. To date a long list of corridors (40+) has been identified and is being refined. These will be screened, based upon agreed criteria, in order to identify a short list of corridors (~20-30) that will be subject to the detailed evaluation.

The objective for the detailed evaluation framework is to enable a comparative assessment of the corridors to be made. The framework therefore must:

- | Assume a common reference case (2035 Regional Transportation Plan Financially Constrained System) against which each corridor is compared
- | Ensure a consistent level of detail across the criteria and be commensurate with the level of project information available
- | Enable sufficiently disaggregate scoring, in order that the level of impact can be differentiated between corridors
- | Present the information clearly, concisely and on a consistent basis so that decision makers can compare corridors against each other

It is proposed that no explicit weighting is given to the criteria. Having undertaken the initial evaluation there will be a review phase to gain agreement on the prioritization of corridors; for this it is important that decision makers can consider the implications and understand the potential effect of implicitly applying different weightings.

Associated with this approach the assessment of each criteria will be quantified (potentially, as appropriate, as a monetary value) or qualitatively scored, e.g. adverse, beneficial. The intention of this approach is to avoid the addition of scores and the creation of a 'single' number for each corridor, which would negate the whole ethos of undertaking the multiple account evaluation.

Annex A presents an example of the summary sheet for the detailed HCT evaluation framework.

Evaluation Approach

The detailed evaluation is not a 'single step' in the process, but rather a tool that is employed on an ongoing basis to assist the shaping and refinement of the corridor prioritisation. For each short listed corridor it is anticipated that the project development phase will identify the most plausible forms of mode investment for each corridor based upon the screening assessment (e.g. potential ridership, environmental land take issues). For example light rail may be the only mode option for corridors which are extensions of the existing system, whereas for other corridors light rail, BRT, commuter rail and streetcar¹ options may be identified.

Therefore for each of the (~20-30) short listed corridors it is likely that there will be several plausible mode investments defined. It is against these definitions that the preliminary evaluation will be undertaken.

The output from this will support confirmation that the appropriate mode investments have been assumed and inform the strongest candidate, by highlighting the trade-offs that could occur and may deserve further investigation. As appropriate, the draft definition may be refined and the evaluation results revised accordingly.

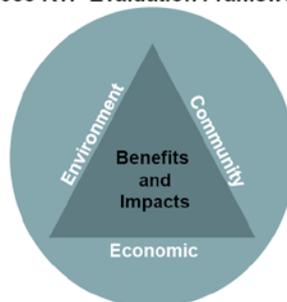
Supporting this iterative process will be the consideration of the system network effects, in order to ensure the definition of individual corridors does not result in precluding valuable opportunities for integration and delivering benefits due to the 'whole being greater than the sum of the parts'.

Proposed MAE Framework

The Multiple Account Evaluation (MAE) approach is consistent with the Regional Transportation Plan (RTP) Outcomes-Based Evaluation Framework. The framework is organized in three evaluation categories:

- | Community
- | Environment
- | Economy

2035 RTP Evaluation Framework



¹ The 2035 RTP transit policy does not currently contain rapid streetcar as a HCT mode. This concept will be further explored in the context of the HCT system plan, and may result in policy refinements to the 2035 RTP.

Each of the categories is focused upon the effect once the investment is made, namely the transit line opens. However, for the evaluation of the corridors it is also important to consider the implications of attempting to implement the identified transit solution. A fourth account is therefore included in the MAE to address deliverability.

The MAE framework aligns with the hierarchy of objectives.

- | Region 2040 Vision
- | 2035 RTP - to implement the Region's 2040 Vision
- | HCT - supporting the RTP's Goals

The 10 RTP's Goals are:

- | Foster vibrant communities and compact urban form
- | Sustain economic competitiveness and prosperity
- | Expand transportation choices
- | Effective and efficient management of transportation system
- | Enhance safety and security
- | Promote environmental stewardship
- | Enhance human health
- | Ensure equity
- | Ensure fiscal stewardship
- | Deliver accountability

These goals can be grouped under the three evaluation categories used in the RTP, which provide the structure for the MAE framework (see Figure 1), alongside the consideration of deliverability and a summary of the corridor characteristics as produced from the screening exercise. For each evaluation category criteria addressing different aspects of the category are presented.

The evaluation will be both quantitative and qualitative, depending on the level of project development and extent of information available. As more information becomes available the assessment can be revisited.

Deriving from the framework structure will be a summary sheet designed to provide an overview for each corridor that will allow decision makers to identify and confirm the mode investments and corridors to be prioritized. Associated documentation will provide supporting evidence for the detailed evaluation findings.

In the summary sheet, commentary will present the most significant findings against the criteria and provide a justification of the assessment score (including any assumptions made due to the absence of full information). Where mitigation of a negative impact would be required, it will be described and the score will reflect the mitigated effect

In the initial stage the scoring will be based upon a seven-point scale:

- Significant benefit
- Moderate benefit
- Slight benefit
- Neutral
- Slightly adverse
- Moderately adverse
- Significantly adverse

Figure 1 – MAE FRAMEWORK

CORRIDOR CHARACTERISTICS FROM SCREENING EXERCISE

Criteria	Measure	Role
Corridor length	Distance	<p>The summary of corridor characteristics provides the context for the evaluation and will aid interpretation of the assessments for different corridors.</p> <p>For the ~20-30 corridors short listed by the screening process, mode investment options will be identified on the basis of the total potential passenger demand, the extent of land use intensity / sprawl (as assumed in the reference case), the socio-economic composition of the catchments, etc.</p>
Catchment population	Population (within walking distance, via connecting services, park & ride)	
Population density / land use intensity	Land use intensity (urban hubs, suburban sprawl)	
Current ridership	Passenger demand	
Share of ridership transit dependent	Percentage share [within catchment] based on automobile ownership statistics	
Future ridership potential	Passenger demand	

COMMUNITY EVALUATION CATEGORY

Criteria	Measure	Role
Support of regional and policies and Aspirations	Qualitative scoring	Identification in strategic terms of consistency or inconsistency with other proposed plans or policies; stated community aspirations through Metro Local Aspirations process.
Land use integration	<p>Identification of major activity centers served, e.g.</p> <ul style="list-style-type: none"> Housing Hospital & medical centers Major retail sites Principal colleges / universities Major Federal / State Government offices Employers > 500 employees Industrial / Office zones Sports sites / venues 	Ensuring the proposed corridor encompasses both current and future key demand attractors and generators and meets the requirements of transit to provide a service to and from where people wish to travel (geographic equity).
Transport network integration	Identification of whole journey benefits due to integration with	Consideration of the network benefits that can be achieved, including both

	transit transfer centers and interchange opportunities	physical integration (i.e. good interchange opportunities) and system integration (i.e. timetabling connecting services, through ticketing).
Equity	Catchment analysis for social groups (low income and minority census tract) within walking access (1/4 mile) to a stop	Consideration of those who may receive greatest benefit from the transit investment due to current barriers to travel and opportunities for them.
Safety	Qualitative, based on adherence to good design standards	Safety impacts for 'whole journey', namely transit access, waiting environment and on transit, as well as for all other modes.
Personal security	Qualitative, based on adherence to good design standards and policing policies	Personal security for 'whole journey' at different times of the day due to urban design (e.g. illumination, sight-lines) and presence of transit staff / surveillance.
Health	Comprehensiveness of pedestrian and cycling network Increase in average bicycle and pedestrian mode share	Benefits from greater pedestrian access to transit and increased walking and cycling within the corridor.

ENVIRONMENT EVALUATION CATEGORY

Criteria	Measure	Role
Emissions & disturbance	Change in VMT and resulting emission levels for CO2. (Potentially for the full scheme life-cycle)	Impacts on local air pollution, greenhouse gases and noise.
Habitat	Identification of sensitive habitats	Impacts on environmentally sensitive areas due to land take or proximity to major infrastructure.
Open space	Acres of open space lost	Impacts on the amenity value of open space, e.g. parkland.
Urban design	Identification of impacts of property loss and qualitative assessment of its significance	Impacts on the amenity value of urban areas (e.g. services available including residential, architectural merit, heritage value)
Urban form	Identification of impacts on urban composition	Impacts on the potential to deliver outcomes of re-zoning. [Encouragement

of FAR]

ECONOMY EVALUATION CATEGORY

Criteria	Measure	Role
Transport efficiency (Users)	Average journey time benefit per rider and distribution of Transport System User Benefits (TSUB).	The average journey time benefit will demonstrate the effectiveness of the option across the system. The assessment of distribution will identify the 'winners and losers' across the system (e.g. if an extension results in new demand causing crowding on an existing section of route).
Transport efficiency (Operator)	Farebox recovery and cost per new rider	To identify the financial performance of the day-to-day operations.
Economic competitiveness	Change in employment catchment for employment centers (in the reference case) and identification of impacts on supporting redevelopment of industrial / commercial sites.	Improved transit and land use will increase the labour market's access to employment centers and promote re-development of employment sites.

DELIVERABILITY EVALUATION CATEGORY

Criteria	Measure	Role
Feasibility (Construction)	Construction duration and technological challenges for construction	The negative impacts from the construction of the scheme may be so great as to outweigh the benefits of the resulting scheme.
Feasibility (Operations)	The scheme must be operable in terms of the capacity of the system (vehicles, stops, depots etc) to meet the demands on them and enable reliable levels of service to be delivered	The design of the scheme must enable it to be efficiently operated.
Acceptability	Public and political support for the investment	Local populations may or may not wish to trade-off improved transit against other issues such as increased land use

		density. There may be a local commitment for increased land use development in order to justify a 'higher level' investment mode.
Funding	Budget limits	The level of funding required will determine the potential sources for it.
Cost effectiveness	FTA criteria	Based upon the forecast costs and transport benefits the measure demonstrates the value for money / cost effectiveness of the scheme.

The detailed evaluation framework is intended to select and prioritize the 'best' HCT corridors for investment. Annex B presents draft project advancement criteria that would apply post HCT corridor prioritization.

ANNEX A – EXAMPLE SUMMARY SHEET

Detailed HCT Evaluation Framework Summary Sheet			
Corridor	[HCT corridor title]		
Description:	[Description of corridor based on characteristics from screening exercise, i.e. corridor length, catchment population, land use intensity and ridership]		
Evaluation Category	Criteria	Commentary	Assessment
COMMUNITY	Support of policies & Aspirations	[Commentary on the impact]	[Qualitatively scored on 7-point scale: significant / moderate / slight, benefit / adverse & neutral or quantified if analysis available]
	Land use integration		
	Transport network integration		
	Equity		
	Safety		
	Personal security		
	Health		
ENVIRONMENT	Emissions & disturbance		
	Habitat		
	Open Space		
	Urban design		
	Urban form		
ECONOMY	Transport efficiency (Users)		
	Transport efficiency (Operators)		
	Economic competitiveness		
DELIVERABILITY	Feasibility (Construction)		
	Feasibility (Operations)		
	Acceptability		
	Funding		
	Cost effectiveness		

ANNEX B – PROJECT ADVANCEMENT CRITERIA

The draft detailed HCT evaluation framework described above represents the extent of evaluation criteria to be applied in the HCT System Plan process. However, it will be critical for the System Plan to clearly describe to local jurisdictions that are identified as potential future recipients of HCT investments what the next level of evaluation criteria and measurable targets they are required to meet are to move projects forward to the next phase of development.

We propose that the HCT System Plan include a set of criteria for project advancement. These criteria would provide local jurisdictions clear direction about what they need to do to advance their project to the next level of study (corridor level planning and analysis). The project advancement criteria suggested in this annex are additive to the detailed evaluation framework discussed above, since it may be necessary for local jurisdictions to improve their assessment against certain criteria that were considered in the HCT System Plan process.

In effect these criteria form the early basis for a System Expansion Policy that will help the region direct funding to major transit investment projects that meet RTP goals and protect taxpayer money by ensuring cost effective transportation investment decisions. The success of the region's light rail program has spurred demand from many communities throughout the area. While some may merit investment based on current and planned conditions, others may be more willing to make changes to land use, provide financial incentives to developers to create mixed-use, transit orientated development and/or provide direct funding for a new service. An effective System Expansion Policy will make it clear to jurisdictions along a proposed alignment what targets are needed to merit a rail expansion or a new HCT line. The Policy should also require jurisdictions along the alignment to work jointly to meet minimum requirements for the line.

In the San Francisco Bay Area, BART and the Metropolitan Transportation Commission have addressed this topic through BART's System Expansion Criteria and MTC's Transit Orientated Development Policy. Because unmet housing needs are perhaps the largest regional issue in the Bay Area, MTC's criteria set minimum residential density thresholds that local jurisdictions must meet in order to merit a major transportation expansion project. The thresholds are met at the corridor level rather than the individual station level, and local jurisdictions are required to co-operate with each other, allowing higher densities at some stations in order to offset lower densities at others. Local jurisdictions are also allowed to pay down density requirements through direct contributions to BART.

BART sets a high priority on land use, but also allows rail expansion in order to address inter-modal connectivity or to create system efficiency projects like a rail yard. BART projects go through an initial screening process, and successful candidates are evaluated further in the design phase, with each station requiring a *'Ridership Development Plan'*, a combination of increased densities and access improvements to ensure ridership targets are met.

The following is a proposed set of requirements that, subject to discussion, could form the basis for System Expansion Policy in the Metro region.

I Ridership Development Plan. Each station along a proposed alignment should be evaluated for ridership potential based on the jurisdiction's demonstrated willingness to promote transit supportive development. Ridership thresholds should be set for light rail, BRT and other HCT modes. Additionally, corridor thresholds should be set, requiring jurisdictions to work together on project advancement. Furthermore, each station should undergo an evaluation to determine the:

- I capacity for station area development
- I ability to create good station access for all modes
- I issues for station capacity and functionality.

These three elements could be measured initially as:

- I Low: Station location that would not support transit orientated development and that would negatively affect the quality of the station experience for patrons (e.g. freeway median)
 - I Medium: Station location with good potential for transit-orientated development and an acceptable station experience for patrons
 - I High: Station location that already has or would greatly facilitate transit-orientated development and would provide a good experience for patrons (e.g. downtown locations)
- I New Cost Effectiveness Evaluation with TOD.** Jurisdictions' commitment to developing ridership at proposed stations will impact the cost-effectiveness of the proposed HCT investment. Cost-effectiveness should therefore be re-evaluated using the same measures as proposed for the detailed evaluation framework. This provides an opportunity for communities to take credit for land use policy changes implemented after HCT System Plan completion.
- I Financial Capacity Evaluation.** To advance a proposed HCT investment, a minimum level of analysis should be conducted to demonstrate the capacity to fund capital and operations with no significant negative consequences to existing infrastructure or transit system operations. This evaluation should consider:
- I **Capital Finance Plan:** Financial capacity to fund capital construction should be evaluated. A qualitative rating could be developed based upon the following or similar measures:
 - I A fully funded project
 - I The stability, reliability and availability of proposed funding sources
 - I Competition for funding that would be used for core system capacity enhancements or maintenance.

- | **Operating Finance Plan:** A preliminary finance plan for operation of the investment should be reviewed. Proposed measures might include:
 - | Estimated farebox recovery
 - | The stability, reliability and availability of proposed operating subsidy
 - | For projects outside the TriMet district - funding sources that do not draw on, or risk the use of Tri Met operating revenues.

- | **System Capacity.** A HCT line extension or new line will create demand on the core system or require investment in new support infrastructure. Any new investment should enhance (at best) or at least minimize demands on the core systems, particularly:
 - | Yard / Support facilities. Ability of existing facilities to support new line and/or ability to site new infrastructure on proposed alignment.
 - | Redundancy / Recovery capabilities. Proposed alignments impact on the system's ability to increase capacity to deal with malfunction, incident or construction/maintenance (e.g. new rail line using Steel Bridge increases impact on bridge outage, new Willamette River crossing improves redundancy).
 - | Station and Line Haul capacity. As the light rail system expands, increasing demands are placed on the system, creating bottlenecks where lines overlap or where individual stations are shared by a number of lines. The ability for existing stations and track infrastructure to accommodate a proposed investment should be considered.