

To HCT Team
Cc
From Steer Davies Gleave & Nelson\Nygaard
Date 12 February 2009
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 has been refined to a short list of corridors (~15) 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 baseline scenario (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 criterion 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.

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 prioritization. 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 and evaluated.

Therefore for each of the (~15) 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.

- | 2040 Growth Concept
- | Metro Council adopted definition of what makes a successful region
- | 2035 RTP -implementing the region's 2040 Growth Concept
- | HCT - supporting the RTP Goals

The Metro Council adopted definition of what makes a successful region includes six goals to promote:

- | Vibrant, walkable communities
- | Sustained economic competitiveness and prosperity
- | Safe and reliable transportation choices
- | Minimal contributions to global warming
- | Clean air, clean water, healthy ecosystems
- | Benefits and burdens of growth distributed equitably

The 10 RTP 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. Appendix A presents an example of a summary sheet. 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

Final results will be presented in tiered categories.

Multiple Accounts

The following sections detail the specific criteria that will be used to evaluate corridors against the four accounts:

- | Community
- | Environment
- | Economy
- | Deliverability

A description of essential corridor characteristics will also be provided as part of the evaluation. This information is described in the first table of Figure 1.

System Expansion Policy

It is important to note that this level of evaluation is designed to provide a preliminary prioritization of corridors and narrow mode investment options. The assessment will be based on current and projected land use conditions. However, it is recognized that projections are never completely accurate and that conditions will change over time.

To account for these changes, a System Expansion Policy including a separate set of criteria required for project advancement is proposed.

These criteria would provide communities along a corridor an opportunity to make proactive changes to land use and access policies. Jurisdictions benefiting from a proposed alignment or project would be expected to submit Ridership Development and Financial Plans before moving to the next phase of project advancement.

The following graphic illustrates how HCT projects would be prioritized in the System Plan process and the role of proposed project advancement criteria, which would allow jurisdictions to change the priority of an adopted HCT system project.

HCT System Plan Evaluation and System Expansion Policy

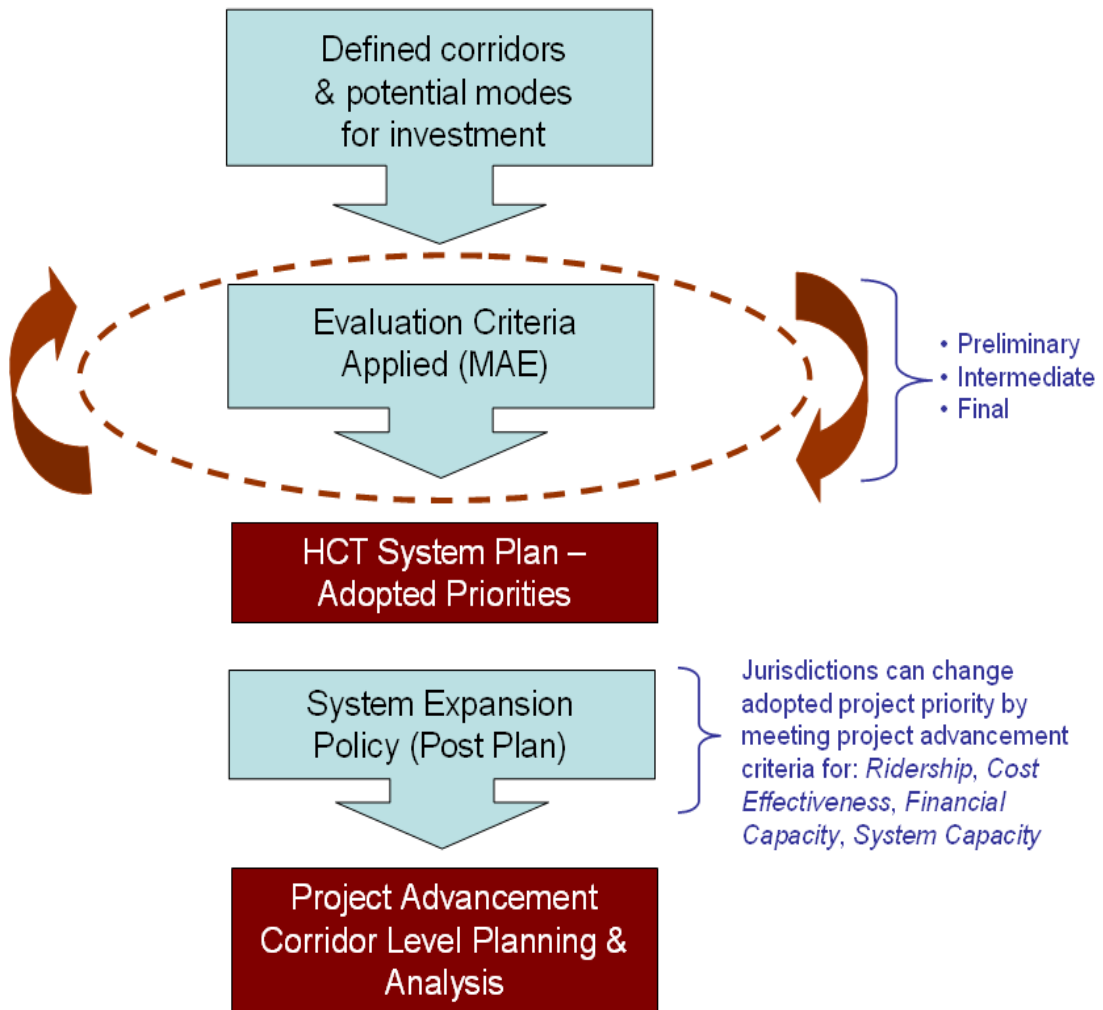


Figure 1 – MAE FRAMEWORK

COMMUNITY EVALUATION CATEGORY

Criteria	Measure	Role	Method
Supportiveness of existing local land use and adopted local transportation plans and policies	Qualitative scoring based on plan review	Identification in strategic terms of consistency or inconsistency with other proposed plans or policies	Existing LU
Aspirations of local communities	Qualitative scoring based on <i>Local Aspirations</i> process	Local populations may or may not wish to trade-off improved transit against other potential investments or may have concerns about the impact of HCT on urban form. Since a high level of local commitment is required for project development, communities that display strong commitment to project success should be acknowledged.	Rely on Metro Local Aspiration Process (reflective of regional goals/policies) Criterion to support local aspirations process with INDEX model
Ridership generators	<p>Identification of major activity centers served, e.g.</p> <ul style="list-style-type: none"> Hospital & medical centers Major retail sites Major social service centers Colleges / universities Major Federal / State Government offices Employers > 500 employees 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.	Evaluate TriMet's top 30 generators; o-d data from travel demand model. Housing not included as a major activity center, but is captured via TOI analysis

COMMUNITY EVALUATION CATEGORY

Criteria	Measure	Role	Method
Support the regional 2040 Growth Concept	<p>1. Central City, Regional Centers, Industrial areas, Freight and Passenger Intermodal facilities</p> <p>2. Employment areas, Town Centers, Station Communities, Corridors, Main Streets</p> <p>3. Inner and Outer Neighborhoods</p>	Rank based on Service to 2040 land use types, consistent with RTP for service types related to primary, secondary and other urban components.	Support Region 2040 land use designations based on RTP priority areas
Transportation network integration - Transit	Identification of full trip benefits due to integration with transit transfer centers and interchange opportunities	Consideration of the network benefits that can be achieved, including both physical integration (i.e. good interchange opportunities), system integration (i.e. timetabling connecting services, through ticketing) and redundancy	Metro and TriMet to conduct a similar exercise to the screening criterion
Transportation network integration - Roads, use of ROW	Where roadways may be used for HCT ROW planned status of ROW (i.e. are plans in place to use ROW, including whether the facility is NHS and/or freight route.	Help to clarify what is the function of the facility.	Review of jurisdictional plans.
Transportation network integration - Ability to avoid congestion	Consider HCT ability to bypass congested areas compared to comparable non-HCT transit in mixed traffic		
Equity	Catchment analysis for social groups (low income and minority census tracts) within walking access (1/4 mile) to a stop	Consideration of those who may receive greatest benefit from the transit investment due to reduction of current barriers to travel reduced cost of travel.	Census and Metro Transportation Equity Analysis for the RTP

COMMUNITY EVALUATION CATEGORY

Criteria	Measure	Role	Method
	Analysis of % of households with no vehicle available	Members of these households are likely transit consumers. Analysis includes: low and very-low income, racial minority, seniors, disabled people, low car ownership.	
Safety	Qualitative, based on adherence to good design standards	Direct safety impacts due to design and placement of HCT in ROW (i.e. physically segregated, running with general traffic, on-street stops).	Selection of corridors that have extraordinary conditions that may present a safety issue (e.g., freeway, elevated, trench, etc)
Health (Promote physical activity)	Comprehensiveness of pedestrian and cycling network Increase in average bicycle and pedestrian mode share	Assess benefits from increased physical activity caused by greater pedestrian access to transit and increased walking and cycling within the corridor.	Model and spreadsheet analysis
Housing + Transportation Affordability Index	Analysis of housing and transportation costs as percent of total household income.	Indirect measure of areas where transit demand by assessing the impact of transportation costs on housing choices.	Metro
Placemaking/Urban Form	Identification of impacts on urban composition and public space function	Potential to enhance land development; increase mix of land uses; enhance public spaces	Focus this on an assessment of vacant and underdeveloped land. Metro has done work on developable land in the region.
Transportation efficiency (Users)	Average travel time benefit per rider and distribution of benefits across the line and the system. This measure will also determine whether HCT is an effective	The average travel time benefit will demonstrate the effectiveness of the option across the system. The assessment of distribution will identify the 'winners and losers'	Model/TriMet

COMMUNITY EVALUATION CATEGORY

Criteria	Measure	Role	Method
	mode compared to non-HCT transit through congested areas.	across the system (e.g. if an extension results in new demand causing crowding on an existing section of route).	

ENVIRONMENT EVALUATION CATEGORY

Criteria	Measure	Role	Method
Emissions & disturbance	Change in VMT and resulting emission levels for CO2 and other harmful pollutants such as NOx and SOx. (Potentially for the full project life-cycle)	Impacts on local air pollution, greenhouse gases and noise. Transportation related environmental impacts tend to track closely to VMT, making it a valuable proxy for emissions and air quality related measures.	Model
Natural resources	Length of alignment impacting identified sensitive habitats and/or natural resources	Impacts on environmentally sensitive areas due to land take or proximity to major infrastructure.	RLIS
4(f) resources	Acres of 4(f) resources impacted	Impacts on the amenity value of parkland, schools and other 4(f) resources.	RLIS

ECONOMY EVALUATION CATEGORY

Criteria	Measure	Role	Method
Transportation efficiency (Operator)	Cost per rider	To identify the financial performance of the day-to-day operations.	Metro/TriMet
Transportation efficiency (System)	Annualized capital and operating cost per rider	To identify the overall cost-effectiveness of the corridor.	Metro/TriMet
Economic competitiveness	Change in employment catchment	Improved transit and land use will increase the labor market's access to employment centers and promote re-development of employment sites.	Metro
Rebuildability	Vacant and rebuildable		Metro

DELIVERABILITY EVALUATION CATEGORY

Criteria	Measure	Role	Method
Feasibility (Construction)	Capital cost	Flag for instances where negative impacts from construction of the project may be so great as to outweigh project benefits.	Sketch level engineering
Feasibility (Operations)	Operating cost	Ensure design of the project enables efficient operations; assess impact of project on existing system function/capacity.	Also focus on what impact new corridor operations would have on existing lines. TriMet should be involved in this evaluation.
Ridership	Ridership	Evaluate total ridership, ridership per revenue hour and revenue mile, system ridership impact.	Model
Funding potential	Initial assessment of local and federal funding opportunities to cover estimated capital and operating costs	Most projects will not have funding sources identified. The intent is to identify key obstacles to successful funding or reward any project that has substantial identified local funding. A more detailed funding plan will be required at the project advancement phase.	Not to focus on existing FTA program criteria but assessment of likelihood of receiving federal funds.
Cost per mile	Capital cost per mile	To act as a comparative tool to measure corridors of different length.	Sketch level engineering.