



**CITY OF KIRKLAND**  
**Department of Public Works**  
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**MEMORANDUM**

**To:** Kurt Triplett, City Manager  
**From:** David Godfrey, P.E., Transportation Engineering Manager  
Pam Bissonnette, Interim Public Works Director  
**Date:** April 3, 2014  
**Subject:** Transportation Master Plan Update

**RECOMMENDATION:**

It is recommended that City Council receives a briefing and gives direction on the Transportation Master Plan (TMP). Specifically, staff is seeking comment on draft project lists and project selection methodology. Staff is also seeking input on whether to include certain "larger projects" that may take years to implement and/or require outside funding and outside partners to complete such as I-405 interchange projects and Metro Transit speed and reliability projects.

**BACKGROUND DISCUSSION:**

*Introduction*

Kirkland's TMP will serve two major purposes (Figure 1). Its goals and policies will provide the basis of the Transportation Element to be included in the revised Comprehensive Plan. Action items, priorities and other information will also be provided to complete the TMP and form a fuller picture of how the goals and policies are to be implemented than would be covered in a Transportation Element by itself. Development of the plan is being guided by the Transportation Commission with extensive public input through the City's overall Comprehensive Plan public involvement process.

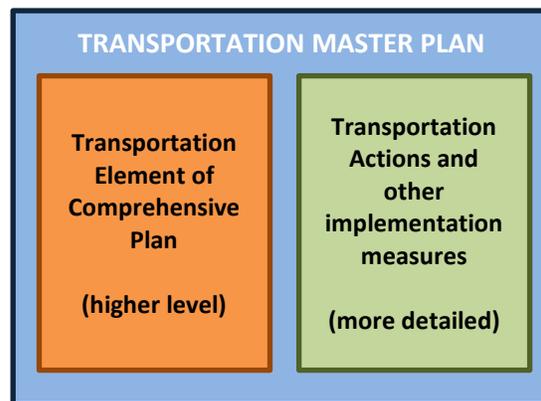


Figure 1 The Transportation Master Plan has two major components.

Goals and Policies are the basis for the Transportation Element. At the January 7 Council meeting we discussed draft goals and policies and received a large amount of valuable feedback. Revisions to the Goals and Policies based on those comments will be fully developed in the future.

A 20 year project list is a required element of the Transportation Element and of the Capital Facilities element of the Comprehensive Plan. The major focus of this memo is a discussion of the 20 year project list.

### *Public involvement*

Since the January Study session with Council, staff has given presentations about the Plan to the Finn Hill, Juanita and Market neighborhoods. The Planning Commission and the Houghton Community Council have also been briefed. A meeting with representatives from the Cascade Bicycle Club and Kirkland Greenways to review the draft bicycle network is scheduled for April 10.

A major effort is planned for the April 26 Community Planning Day. Citizens will have a chance to not only review the network plans, but through an interactive exercise, indicate a level of funding and relative priorities they'd like to see for various project types. More details on the plan for April 26 will be presented at the April 15 Study Session.

The Transportation Commission has provided guidance for the Plan development at each of their meetings.

Efforts will continue to partner with outreach for other Kirkland 2035 projects, specifically the Comprehensive Plan update.

### *Schedule*

Figure 2 shows a schematic schedule for the project. To stay in synch with the rest of the Plan update, a draft of the Transportation Element needs to be completed by late summer. One factor that may affect project schedule is availability of land use options provided by the Planning Department.



Figure 2 Schematic Project Schedule

### *Projects*

As described above it is necessary to develop a list of projects to complete the Transportation Element of the Comprehensive Plan. The project lists are formed around four modes that come from the Plan Goals; walking, bicycling, transit and auto along with maintenance.

#### Transportation Master Plan Goals

- ❖ Get people where they need to go
  - Walking
  - Biking
  - Public Transportation
  - Motor Vehicles
- ❖ Link to Land Use
- ❖ Be Sustainable
- ❖ Be an Active Partner
- ❖ Transportation Measurement

A similar framework was used to develop projects in each area. Sources of projects were considered, then project types were identified and based on those types, project groups were specified. Individual projects come together to make up groups. Prioritization factors are used to help screen project groups and to rank projects. The draft Goals and Policies were checked across the process to confirm that they were addressed. An example of this framework is described below and shown in Figure 3.

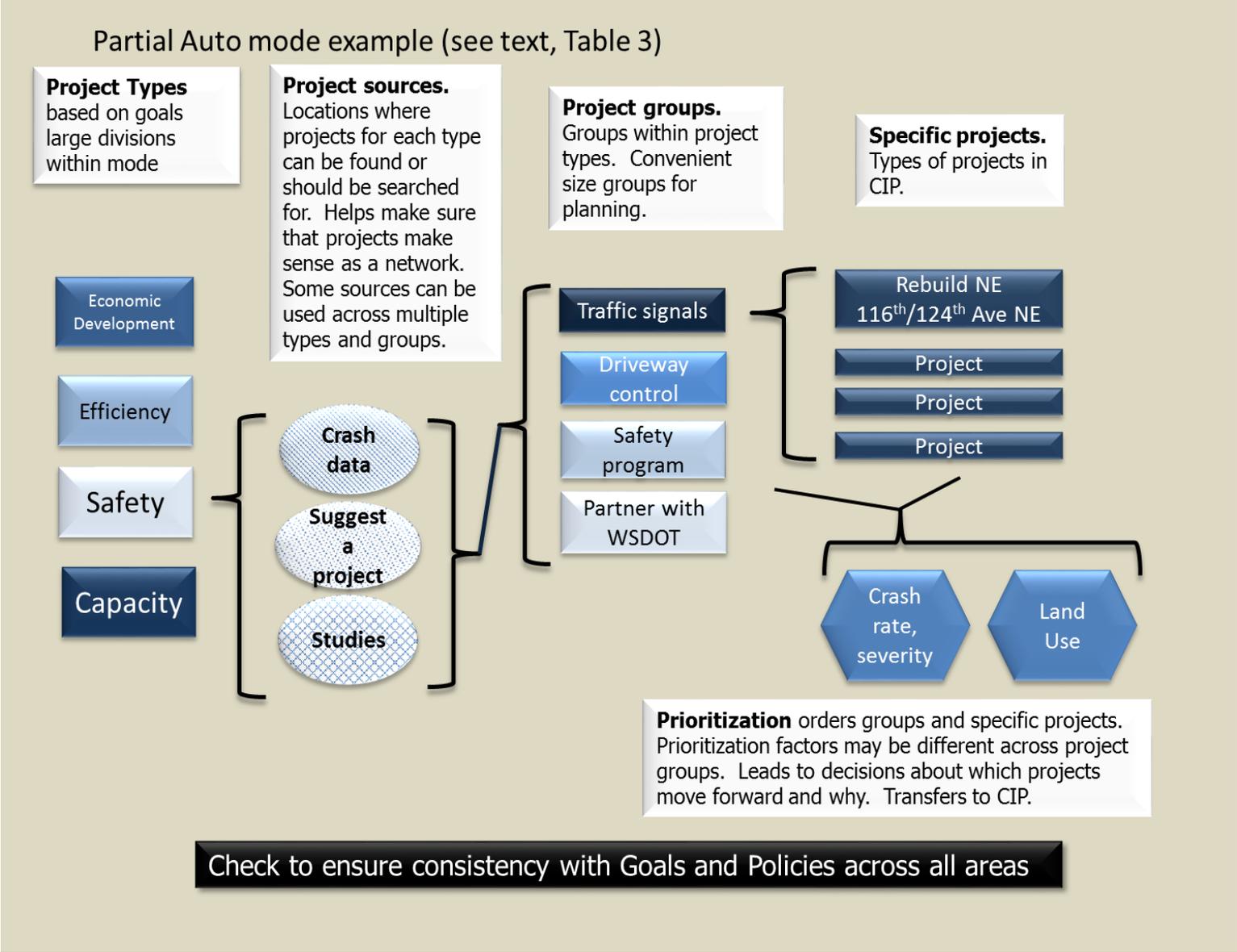


Figure 3 Project selection framework

As illustrated in Figure 3 (see also Table 3), for the auto mode, there are four types of projects that are being recommended for inclusion in the plan: safety, efficiency, economic development-supporting, and capacity-focused. For projects related to safety, a source for project ideas is crash history. Reviewing crash data leads to a conclusion that there should be a group of projects associated with traffic signals. Modernizing the signal at NE 116th Street and 124th Avenue NE in order to better handle left turns is a specific project that would be in the group. A priority for selection of safety projects should be the rate and severity of crashes at a site, among other factors. It will also be necessary to make sure that the plan is more than simply a collection of high ranking projects; it needs to build toward a set of coordinated networks as illustrated in Figure 4. This means that each set of selected projects (see tables 1 through 5 below) should stand on its own as a network. Note that the figure shows separate auto and truck layers but they are combined in the Kirkland Plan.

Ultimately, a set of projects from each area will be proposed for the 20 year project list. This will be accompanied by a phasing plan that suggests an ordering of how the projects would be completed over time. The Capital Improvement Process will decide which projects are funded in a particular 6 year time frame.

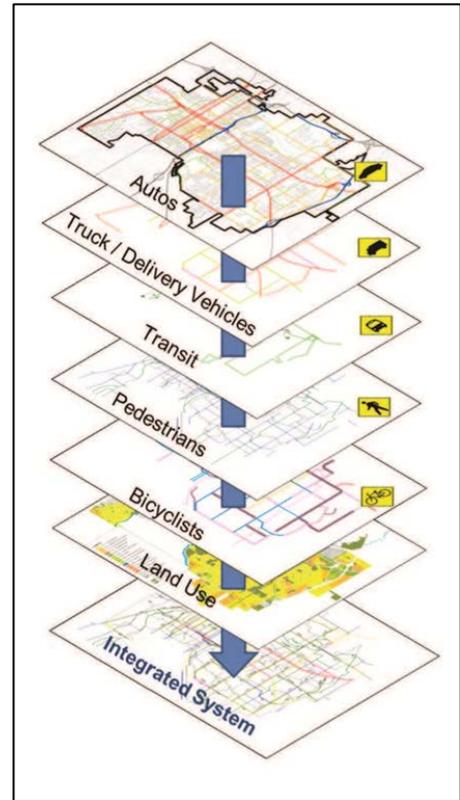


Figure 4 Layered network concept

Tables on the following pages show more specifics for each project area. These tables are intended to be illustrative rather than definitive and they will be developed further in the weeks ahead. It would be helpful to understand Council's reaction to the framework in Figure 3 (on page 3) and to any specifics to which they would like to react.

Maps and more information about project costs will be available at the April 15 study session.

*Notes on Prioritization*

Linking to Land Use is a goal for the Transportation Master Plan. Therefore, as indicated in Tables 1 through 5, land use is a prioritization factor for most project types. In order to prioritize projects with respect to land use, staff from Public Works and Planning is working with the GIS division of Information Technology to develop maps of "20 minute" neighborhoods. A 20 minute neighborhood is one where common services (grocery stores, other commercial services, parks, transit, schools) are within a short walk of residences. Other measures of connectivity are also used to score the neighborhood. The more connectivity elements within a short walk, the higher the value appears on the scale. This information can be used for a number of purposes, such as helping to identify where sidewalks are needed to expand the number of people who can walk to services or understanding where transit improvements would be helpful.

There are several prioritization factors that are not shown in Tables 1 through 5, but will be included for all the different project types. These are:

- Improvement over existing conditions – For example, a concrete sidewalk provides more benefit to an area where no walkway exists than where an asphalt path is in place.
- Benefits to costs – This is often difficult to fully quantify but it is critical to evaluate a measure of project value.
- Life cycle costs – This factor takes maintenance and replacement costs into account.
- Opportunities for outside funding – Some projects are more suitable to grant or other sources of outside funding than others.

**Table 1 Bicycle Projects**

Types	Sources	Groups	Example projects	Prioritization methods
On street facilities	Crash data Missing pieces on network Suggest a project Juanita Drive/100th Ave plans. CKC Master Plan	Changes at traffic signals	Change left turn treatments 113th Ave/NE 124th Street	Land use, CKC connections Crash severity, rate, number Risk exposure Fills gaps on network
		Marking and signing improvements	Green pavement marking in bike lanes on Lake Wa. Blvd in advance of driveways	
		Restriping to improve or add or enhance facilities	84th Avenue NE, remove curb, buffer walkway with bike lane	
		Remove parking or driving lanes to add or enhance new facilities through restriping	Totem Lake Blvd. between 120th Avenue and NE 128th Street	
			Study to find candidate locations	
Construct new facilities	Widen 116th Avenue between south city limits and NE 60th Street for bike facilities.			
Greenways/trails	Missing pieces on network Suggest a project Kirkland Greenways Map	Marking and signing	Combine to create individual greenways. (see network map)	
		Crossing improvements		
		Trail development		
		Traffic calming		
		Bridges over I-405		
Environment and support	Best practices Items in Active Transportation Plan	Bike sharing	Phase I of bike sharing in downtown	
		Wayfinding		
		Bike parking	Create Wayfinding Plan	
		Count program		

**Table 2 Walk Projects**

Types	Sources	Groups	Example projects	Prioritization methods
Crosswalks, sidewalks, lighting	Crash data Lighting review Missing sidewalk locations Suggest a project Improve crosswalk treatments. Juanita, 100th Avenue studies	Changes at traffic signals	Improve left turn phasing at NE 124th Street/113th Ave NE	Land use, CKC connections Crash severity, rate, number Risk exposure (number of vehicle lanes, speed, volume) Fills missing gaps
		Add sidewalks/pedestrian connections	100th Avenue NE south of NE 145th Street.	
		Improve treatments at crosswalks	1st Street at Central Way	
		Add illumination at crosswalks	NE 132nd Street	
		Replace in-pavement lights with RRFB	Kirkland Transit Center	
School Walk Routes	Missing elements on adopted school walk routes -	Add sidewalks, pedestrian connections	Missing sidewalks on major streets	
Environment and support	Best practices Items in Active Transportation Plan	Maps	Update "feet first" city map Establish and implement policy to keep walkways clear.	
		Wayfinding		
		Remove barriers		
		Events		
		Update Active Transportation Plan		
Count program				
Accessibility	Inventory of existing conditions ADA requirements Suggest a project Traditionally underserved populations	Traffic signals	Improve push buttons	Land Use, Usage Legal requirements Presence of alternate routes
		Parking	Add accessible stalls	
		Sidewalk	Improve inadequate ramps	

Table 3 Auto Projects				
Types	Sources	Groups	Example Projects	Prioritization methods
Safety	Crash data Suggest a project Best practices Juanita Drive Study 100th Avenue Study	Left turn treatments at traffic signals	NE 116th Street/124th Avenue NE	Land use, Crash severity, rate, number NTCP measures
		Access control (driveway management)	NE 68th Street/108th Ave NE and vicinity	
		Add traffic signals	NE 85th Street/126th Ave NE	
		Target zero/system based safety program	n/a	
		Partner with WSDOT to improve safety at WSDOT signals	Totem Lake Blvd/NE 128th St	
		Neighborhood traffic control (NTCP)	Slater Ave NE	
Economic Development	Existing CIP Existing neighborhood plans	New traffic signals	To support redevelopment	Ability to support economic development
		New roads/Decreased block spacing in Totem Lake	Streets in Totem Square area	
		Projects at neighborhood business centers	Access control near Houghton	
		Parking improvements/parking expansion	Downtown parking supply increases	
Efficiency	ITS plan Best practices	Complete current ITS projects	Phases I and II	Reduction in delay, stops
		Connect signals	State Street/NE 68th Street	
		Traveler information	n/a	
		Parking technology	Ability for drivers to access parking information	
		Advance control methods	Regular signal timing updates. Adaptive control methods	
Capacity	Existing delay and congestion Best practices Land Use Plan	Intersection expansion	NE 132nd Street intersections	Compatibility with Land Use plan
		Roadway widening	100th Avenue NE	

Table 4 Transit				
Types	Sources	Groups	Example Projects	Prioritization methods
Service, Transportation Demand Management	Service provided by Metro/Sound Transit Best practices, new services	Add standard service	City investment in service	Coordinate with Land Use
		Improve incentives to use non-auto modes	Totem Lake Green Trip expansion	
		Innovative service options	Car sharing/ride services	
			Agreements with transit providers to guarantee service in exchange for commitments to land use	
Improve transit speed and reliability	Metro travel time data	Intersection improvements	Transit priority at traffic signals	Standard methods
		Roadway improvement	Develop transit way on CKC	
Improve passenger environment	Transit boarding data	Basic improvements	Lighting, shelters, benches, sidewalk connections	
		Advanced improvements	Next bus screens, ticketing kiosks	

**Table 5 Maintenance**

Types	Sources	Groups	Example projects	Prioritization methods
Pavement maintenance	Inventories, inspections, public comment	Asphalt overlay	n/a	Maintenance software PCI goals Funding
		Slurry seal		
		Other		
Pavement marking		Paint	n/a	Visibility, reflectivity
		Thermoplastic		
		Other		
Traffic signal		Shorter lifetime items	Replace existing controllers	Product obsolesce, options for improved functionality Age, condition
		Other equipment	Replace traffic signal cabinets	
		Poles, signal heads	Rebuild traffic signal at Juanita-Woodinville Rd/NE 145th Street.	
Street Lights		Street lighting	Upgrade lighting elements	Standard methods
	Pedestrian scale			
Other systems	School zone Flashers, Flashers at crosswalks, radar signs, RRFB at crosswalks	Replace school zone flashers	Product obsolesce, options for improved functionality Age, condition, battery life	
Signs	Critical signs	Replace un-reflective stop signs	Age, condition, reflectivity, changing standards	
	Other signs	Replace street signs with non-conforming size		
Sidewalks	Asphalt walkway	Remove and replace	Condition, location, surrounding land use	
	Concrete sidewalks	Offset grinding		

For the bicycle projects, a bicycle network map (Figure 5) has been developed based upon Council's interest in greenways and building on the network from the Active Transportation Plan. Because the Plan was developed in 2009, the map did not include the new neighborhoods.

Suggest a project is listed as a source for many project types. Suggest a project is an online application where citizens can map their ideas for projects. Over the past few months hundreds of projects of all types have been mapped and are available for review.

#### *Larger projects*

Because this is a 20 year plan, staff recommends that it include projects that are:

- large in scope,
- particularly tied to the vision and goals
- may take a long period to complete

There are five projects that fit this description that are being proposed and on which Council's opinions and thoughts would be helpful. We will further pursue any of these projects for which there is interest.

#### Rebuild I-405 interchanges at NE 70th, NE 85th and NE 124th Streets

These interchanges were designed and constructed to suit purposes that are not in keeping with Kirkland's goals and vision. They are formidable barriers to bicycle and pedestrian movement, do not work well with transit, and do not support the surrounding land use. The mismatch with land use is particularly strong in Totem Lake where the NE 124th Street interchange has been recognized as a major impediment to the activation of Totem Lake. Today, Kirkland has only one robust access point to transit service on I-405 and that is located at NE 128th Street. If Sound Transit were to operate Bus Rapid Transit on I-405 it becomes even more important to gain access to it and NE 85th Street is a likely place for this to happen. Getting interchanges reconstructed would likely require Kirkland funding early stages of project study and development and then the pursuit of funding from outside sources and prioritization with WSDOT.

#### Cross Kirkland Corridor development

With the completion of the interim trail and the Master Plan, we are poised to begin implementation of projects that have the ability to substantially change the face of transportation in Kirkland. Council and the community have been supportive of implementing the corridor vision.

#### Transit Speed and Reliability

The project team is looking for ways to improve the speed and reliability of transit. This is necessary if transit is to play an important role in Kirkland's transportation system. Common approaches to this problem fall along a spectrum from minor improvements like stop consolidation, to spot intersection improvements that allow buses and traffic signals to communicate with each other so the bus can get more green time, to more major solutions involving separate lanes for buses at intersections or over longer distances. The Cross Kirkland Corridor is certainly envisioned as playing a role in this regard, but should other more major projects be pursued? Gaining more direct access to the large amounts of transit that is on SR 520 is another important concept to pursue.



### Shoreline Walkway

Several years ago the Transportation Commission developed the concept of a major shared use facility along the lake front. The vision included removing parking (from one or both sides) and consolidating it with space currently dedicated to bicycle travel. This area, up to 20 or more feet in width would be used with the existing sidewalk on the west side of Lake Washington Boulevard to create a signature facility for walking and biking along the lakefront. With a vision similar to that of the Cross Kirkland Corridor, it would be designed as a place in its own right.

### Juanita Drive

The Juanita Drive Master Plan has identified a set of projects that meet the following goals:

- Address safety needs for all travel modes.
- Maintain corridor unique identity and natural landscape.
- Engage community in shared vision for future improvements.
- Protect the extraordinary natural environment.
- Provide financially feasible, strategic and realistic priorities for the corridor.

Project elements include bicycle facilities, a pedestrian walkway, new crosswalks and improvements and intersection treatments. Funding the entire set of proposed projects would require an investment of on the order of \$20 million and because of that it is included as one of the possible large projects. The project elements could also be combined in various ways and implemented in various smaller stages. A representation of a sample cross section for Juanita Drive is shown in Figure 6. A presentation on the Juanita Drive Study is scheduled for the May 6 Council meeting.



Figure 6 Representation of proposed Juanita Drive Cross section

### *Financing*

One of the plan goals is Sustainability and this includes being financially sustainable. The Consultant team has been working with staff from the Finance Department to understand the amount of funding that is likely to be available and potential additional sources that could be used. More information on this subject will be available at the Study Session on April 15.

### *Land Use Modeling*

The Consultant has modeled the number of trips that would be generated by the base land use alternative as prepared by the Planning Department. Consistent with the City's growth targets provided by King County, this land use vision assumes that 8,361 new households and 22,435 employees are added to the City between today and 2035. Under this base land use alternative, development follows existing zoning rules and development patterns. Overall, the travel model estimated that the number of trips associated with city land uses (that is, trips that start or end in the city, excluding through trips) would increase by 39 percent between today and 2035. Overall traffic volumes on city streets, including through trips, are expected to increase by 37 percent during the evening commute hour.

At the January Study Session, Council directed staff to explore the cost and size of an auto network that would be adequate to significantly reduce congestion. A study is also being performed to evaluate the number and distribution of trips that would be generated in and through Kirkland if no growth were to occur in Kirkland over the next 20 years. More information on both of these items will be available at the Study Session on the April 15.

### *Concurrency*

Concurrency is in place to help balance the rate at which land use is developed and transportation facilities are constructed. Our current system measures only performance at signalized intersections to determine this balance. The proposed system would consider the complete 20 year set of projects across modes and relate progress on development of this system to the number of new trips that are permitted.

Because a 20 year project list is necessary to complete the framework for the new system, this will likely come toward the end of the TMP development.

### *Questions Council may wish to consider*

- Is the project selection method satisfactory?
- Are the larger projects appropriate?
- Are there concerns or observations on the general approach to the TMP?