SOUNDTRANSIT

Lynnwood Link Project Costs and Value Engineering Program

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Sound Transit is working to establish the baseline cost estimate and schedule for the Lynnwood Link Extension project in early 2018. In advance of that work, this document reviews recent upward cost pressures, the Value Engineering Program underway to contain some of these costs, uncertainty surrounding federal funding, and the impacts of these cost pressures on the project schedule.

Summary

As Lynnwood Link approaches the 60 percent design level, estimated project costs are trending upward. The current estimate prior to value engineering reduction efforts is $2.9 billion. By comparison, the Sound Transit 2 ballot measure assumed project costs at up to $2.4 billion in year of expenditure dollars, inclusive of capital construction, light rail vehicles and operations and maintenance facilities. At the conclusion of preliminary engineering in 2015, our estimate was $2.1 billion.

The cost pressures affecting Lynnwood Link largely fall into three categories. First, unfavorable construction market conditions are now triggering higher construction costs for major capital projects across the Western United States and the Pacific Northwest in particular. Property acquisition costs are rising at the same record rate as residential property values. Also, as is detailed below, the cost of materials is increasing precipitously while the scarcity of available skilled labor is prompting even higher contract bids.

Second, there are a number of areas where project scope has expanded since the preliminary designs. In some cases, the scope has expanded to accommodate updated conditions, including greater bus integration opportunities to increase passenger access to our stations. In other cases, scope needed to be expanded to satisfy local building codes, respond to requests from local municipalities and/or help mitigate project impacts on local residents and the environment.

Third, the decision to deliver the project using the General Contactor/Construction Manager method (GC/CM) brought with it a customary upward adjustment in the cost estimate while also better locking down final prices earlier in the process.

Over the next several months, project staff will focus on intensive analysis of alternatives for reducing costs before the agency sets a baseline budget and schedule for the project. Sound Transit's normal processes for establishing the baseline cost estimate and schedule for the project will move forward in early 2018 after this Value Engineering Program is completed. We will continue to work with the Federal Transit Administration (FTA) to secure federal funding of $1.1 billion for the project despite budget proposals from the Administration calling for the termination of federal contributions to projects including Lynnwood Link.

To keep the project moving forward in the federal funding process, the next submission to the FTA in September will reflect the agency's newer cost estimates prior to the current value engineering effort. It will also assume taking roughly six months longer to complete the project based on factors including uncertainty around federal funding and continuing work on the

project design. This shift moves our schedule for the opening of the project from December 2023 to mid-2024.

Value Engineering Program

The project team is working to reduce costs through an extensive and robust Value Engineering effort. This effort involves agency staff, our design and construction management consultants and our General Contractor/ Construction Manager contractors. It also involves the cities of Seattle, Shoreline, Mountlake Terrace and Lynnwood as well as Community Transit, King County Metro, and the Washington State Department of Transportation (WSDOT).

The team is evaluating cost saving ideas generated by the value engineering effort thus far. Examples include adjustments to design criteria and standards that create efficiencies without affecting safety and quality, and better collaboration with jurisdictions to meet their requirements more efficiently.

The Value Engineering Process has three phases:

1. Design review through September will focus on **identifying changes** to save costs.
2. Through December the agency will **develop engineering documents** on potential changes.
3. During the first quarter of 2018 the agency will **develop new cost estimates.**

Unfavorable market conditions

Market conditions that are creating significant cost pressures on the project fall into two categories: real estate costs and construction costs. While Sound Transit's cost estimation process includes built-in inflation estimates, the region's current boom economy has substantially exceeded these estimates.

Real Estate Market Conditions

The real estate market in the Central Puget Sound region is at a historic peak, with very high demand and a very limited supply. Despite a conservative 20 to 25 percent assumed escalation factor used to develop the PE cost estimate, property appraisals are now running approximately 44 percent higher. Moreover, a limited supply of comparable properties is making the required tenant relocation process much more difficult.

Construction Market Conditions

The current construction market in the Central Puget Sound region continues to be very strong in both the public and private sectors. Overall, the region's market is saturated with high construction demand, a worsening labor shortage for a number of key crafts and frontline supervision, and the return of some price escalation for materials and commodities.

Given the current high demands in the region's construction market, contractors (both general- and sub-contractors) are in a position to choose among multiple jobs and charge higher premiums for their services.

In our discussions with other regional public owners, we understand that WSDOT, the Port of Seattle, and Community Transit are also experiencing significant increases in construction costs. For example, this week the Port of Seattle announced a 16 percent increase in costs for

construction of its new International Arrivals Facility and a 19 percent increase in costs for the North Satellite Expansion Project.

Recently, Sound Transit asked Hoffman Construction Company to conduct an exercise to estimate the costs of constructing our University of Washington Station in today's market as compared to the market conditions during the construction period for the University Link Extension (2009-2016). Hoffman was our GC/CM contractor for this station contract that Sound Transit awarded in February 2011 for approximately $141.7 million. In response to our request, Hoffman reports that the station would cost approximately $248 million in today's construction market, an increase of over 74 percent. Applying standard escalation factors accounts for only 25 percent of that increase.

In recent discussions with our GC/CM contractors we have noted the following:

- General contractors and subcontractors are putting in premiums for risk due to the lack of available labor.
- Labor shortages are and will continue to be a major challenge, especially with the strong growth on the West Coast.
- Strong construction markets along the West Coast and in the western states are eliminating and/or limiting the need for experienced workers to seek work in our region, further reducing availability in a number of crafts and requiring payment of premiums to attract or retain experienced craft workers.
- The current availability of apprentices and pre-apprentices in the region is stretched very thinly due to peak construction demand.
- Subcontractors are putting in premiums for risk due to the shortage of available experienced frontline supervisors.
- A number of subcontractors currently have a strong backlog of available work. This factor, combined with the shortage of available experienced frontline supervision, is limiting their desire and/or ability to pursue additional work opportunities.

Similar to labor, staff has been reporting on some of the higher pricing associated with construction materials and finish elements. In our recent discussions with our GC/CM contractors we have noted the following:

- Rebar pricing is expected to rise this year, after falling during the two previous years.
- Similarly, structural steel is also expected to rise after falling during the previous two years.
- Lumber pricing is expected to rise at higher rates this year than last year.
- A steady rise in cement and aggregates costs is increasing the cost of third-party concrete deliveries.

At our request, Hoffman Construction looked at inflation of a number of commodities specified in our contract documents. The below table summarizes current rates as percentage increases over quotes received in the past one to two years.

Snapshot of Building Cost Escalation
2015 – 2017

Description	Market Condition Percentage
Division 3 – Concrete	8.0%
Division 4 – Masonry	100.0%
Division 5 – Metals	30.0%
Division 7 – Thermal/Moisture Protection	45.0%
Division 8 – Openings (doors and windows)	40.0%
Division 9 – Finishes	35.0%
Division 14 – Conveying Systems (elevators & escalators)	350.0%
Division 31 – Earthwork	10.0%

Source: Hoffman Construction

Scope Changes

As final design continues, the team is working with our jurisdictional partners to address design modifications that have developed following the preliminary engineering phase. In addition to increased real estate acquisitions, a number of other scope changes during final design have also added costs.

- Improved transit and ST3 BRT integration – The PE station design did not account for major changes in regional transit that have recently taken place, changes that will be a great benefit to the region's commuters. These include a new Long Range Plan for King County Metro that will add extensive and previously unanticipated bus service to the Lynnwood Link stations. In addition, ST3 included two bus rapid transit lines terminating at the Shoreline South/145th and Lynnwood City Center stations. These transit integration improvements require additional space and modifications to the stations in Shoreline and Lynnwood.

- Additional property needs – Since preliminary engineering, property acquisition needs have increased. Factors driving increased acquisitions include:

  - Better understanding of construction staging and access requirements.
  - Station design modification to accommodate increased multi-modal integration.
  - Project mitigation and evolving local code requirements.
  - Street improvements and other factors in proximity to the alignment that are developing during final design.

  These factors along with real estate inflation have increased the project's right-of-way acquisition costs by approximately $100 million.

- Changes in third party requirements – The project travels through four cities. During final design the project team has worked with those cities to better understand land use and fire and life/safety requirements due to existing and changed code. These changes have added costs.

- Incorporations of lessons learned from other projects and operations – As Sound Transit builds and operates additional light rail extensions, the agency has been able to adopt changes to the Lynnwood design to account for lessons learned on other projects.

While, these changes result in a better final project, they can contribute to added cost.

- Tree replacement – With much of the alignment running along WSDOT I-5 right of way, a substantial number of trees will need to be replaced. As part of the mitigation for tree removal developed during final design, many more trees will be replaced than are removed. This landscaping mitigation is estimated to cost approximately $32 million more than what was estimated.

- Temporary Noise Walls - During construction, Sound Transit is planning to erect a higher number of temporary noise walls than previously assumed to mitigate for construction noise.

GC/CM Factor

The agency selected the General Contractor/Construction Manager (GC/CM) contract delivery method for the project for both heavy civil and systems construction. Two heavy civil GC/CM contractors are currently onboard under a preconstruction services contract. Having GC/CM participation in the final design process typically results in costs that are 5 to 10 percent higher than typical design-bid-build contractor.

While this is one dynamic at play in the current cost estimate, the key benefit of the GC/CM method is that higher final design cost estimates are offset by significant reductions of risks and change orders during the construction process. As we advance value engineering it also secures the contractors' participation as a key partner in reviewing options and properly identifying and allocating risk as part of pricing of the construction contracts.