**2015 - 2016 Seattle City Council Green Sheet**

**Ready for Notebook**

| Tab | Action | Option | Version |
|---|---|---|---|
| 108 | 1 | A | 1 |

**Budget Action Title:** Create a new CIP project and $200,000 in 2015 and $800,000 in 2016 for Adaptive Signal Control deployment in the Mercer Corridor

Has CIP Amendment: Yes Has Budget Proviso: No

Councilmembers: Bagshaw; Burgess; O'Brien; Rasmussen

Staff Analyst: Anthony Auriemma ; Calvin Chow

Council Bill or Resolution:

| Date | | Total | SB | BH | SC | TR | NL | TB | JG | MO | KS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Yes | | | | | | | | | | |
| | No | | | | | | | | | | |
| | Abstain | | | | | | | | | | |
| | Absent | | | | | | | | | | |

**Summary of Dollar Effect**

*See the following pages for detailed technical information*

| | ***2015 Increase (Decrease)*** | ***2016 Increase (Decrease)*** |
|---|---|---|
| ***General Subfund*** | | |
| ***General Subfund Revenues*** | *$0* | *$0* |
| ***General Subfund Expenditures*** | *$0* | *$0* |
| ***Net Balance Effect*** | ***$0*** | ***$0*** |
| ***Other Funds*** | | |
| ***Transportation Operating Fund (10310)*** | | |
| ***Revenues*** | *$0* | *$0* |
| ***Expenditures*** | *$200,000* | *$800,000* |
| ***Net Balance Effect*** | ***($200,000)*** | ***($800,000)*** |
| | | |
| | | |
| ***Total Budget Balance Effect*** | ***($200,000)*** | ***($800,000)*** |

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***Budget Action description:***

This green sheet creates a new CIP project in the 2015-2020 CIP, and adds $200,000 in 2015 and $800,000 in 2016, for the deployment of an Adaptive Signal Control (ASC) system along the Mercer Corridor. This effort takes advantage of the ASC-compatible signal detection, controller and communication equipment being installed as part of the Mercer Corridor project.

To implement ASC in the Mercer Corridor, SDOT will have to complete construction of the West Mercer project (expected to be complete by the end of 2015), gather firm baseline traffic data after normal traffic activity returns to the area (estimated 3 months), and develop the traffic system model with an ASC vendor to program the signals (estimated 9 months). With this funding, ASC on the Mercer Corridor is expected to be operational by the end of 2016. The $1 million included in this green sheet for ASC on the Mercer Corridor represents Phase 1 of SDOT's total $10.5 million ASC proposal for the Seattle Center and South Lake Union area.

This green sheet amends the 2015-2020 CIP to include the Adaptive Signal Control CIP project page as shown in Attachment A.

Background

SDOT proposes to deploy ASC in the Seattle Center and South Lake Union area to improve traffic flow from Queen Anne, Westlake, Seattle Center and South Lake Union; improve traffic operations at the SR-99 north tunnel access when the tunnel is open and support integrated corridor management on Denny Way and Mercer. Implementation of this network could take place over a 5-year period in 3 phases. Each phase provides additional benefits to the corridor. The Federal Highway Administration (FHWA) indicates that, in general, these systems improve efficiency by five to ten percent. (Note, the FHWA analysis is not specific to the Mercer corridor but is a blanket statement about these systems in general.) SDOT believes that ASC projects are very competitive for grants and that grant funding could potentially cover up to 2/3's of the total project costs.

SDOT proposes the following three phases of implementation:

- **Phase 1** implements ASC on 31 intersections on Mercer, Valley and Roy from I-5 to 3rd Ave W. All of the signal infrastructure to support ASC at these intersections has been built as part of the Mercer project. Phase 1 requires $1 million in funding to procure an ASC vendor, build the signals system model to operate ASC, and build the back office infrastructure to house ASC in the Traffic Management Center.

- **Phase 2** implements ASC on 17 intersections on Denny Way. Phase 2 requires $4.66 million to design and construct the signals at these intersections and implement ASC. SDOT has identified $510,000 of funding for design of the Denny Way infrastructure through an anticipated Puget Sound Regional Council (PSRC) grant and resources in SDOT's ITS program.

- **Phase 3** implements ASC on 21 intersections on "connector streets" between Mercer and Denny Way, including select locations on Elliott Ave, Queen Anne Ave N, Broad St, Dexter Ave N, Westlake Ave N, Fairview Ave N and 1st, 5th and 9th Ave N. Phase 3 requires $4.85 million to design and

construct the signals at these intersections and implement ASC. These "connector street" intersections will allow for more robust use of ASC on the Mercer and Denny Way Corridors.

The table below shows tasks, timelines and preliminary budgets to complete this work. These are very preliminary cost estimates. The type of detection and the cost of configuration per intersection varies considerably depending on the ASC system selected. For example, installation of detection only and configuration of an intersection can range from $30,000 to $75,000 depending on the platform selected.

| **Phase and Task** | **2015** | **2016** | **Funding and Schedule TBD** | **Total Estimated Costs ($1,000)** |
|---|---|---|---|---|
| **Phase 1 – Mercer ASC Implementation** | | | | **$1,000** |
| Select adaptive signal control system through RFP process and complete data collection to support implementation | $200[1] | | | $200[1] |
| Implement ASC on Mercer, Valley and Roy | | $800 | | $800 |
| **Phase 2 – Denny Way ASC Implementation** | | | | **$4,660** |
| Design infrastructure for Denny Way | $510[2] | | | $510[2] |
| Construct Denny Way infrastructure | | | $3,800 | $3,800 |
| Implement ASC on Denny Way | | | $350 | $350 |
| **Phase 3 – Connector Street ASC Implementation** | | | | **$4,850** |
| Design infrastructure on "connector streets" | | | $650 | $650 |
| Construct infrastructure on "connector streets" | | | $3,600 | $3,600 |
| Implement ASC on "connector streets" completing ASC network for Seattle Center/SLU | | | $600 | $600 |
| **Total ASC Project** | **$710** | **$800** | **$9,000** | **$10,510** |

Notes:

[1] Approximately $50,000 to $75,000 will be used to purchase servers, workstations and miscellaneous operating equipment that will be housed in the TMC to operate ASC on all corridors in the city

[2] SDOT has identified $510,000 of funding for design of the Denny Way infrastructure through an anticipated Puget Sound Regional Council (PSRC) grant and resources in SDOT's ITS program.

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**Budget Action Transactions**

**Budget Action Title:** Create a new CIP project and $200,000 in 2015 and $800,000 in 2016 for Adaptive Signal Control deployment in the Mercer Corridor

| # | Transaction Description | Position Title | Number of Positions | FTE | Dept | BCL or Revenue Source | Summit Code | Fund | Year | Revenue Amount | Expenditure Amount |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Increase use of 2015 Fund Balance by $200,000 for the Adaptive Signal Control CIP project | | | | SDOT | USE OF FUND BALANCE | 379100 | 10310 | 2015 | $200,000 | |
| 2 | Increase use of 2016 Fund Balance by $800,000 for the Adaptive Signal Control CIP project | | | | SDOT | USE OF FUND BALANCE | 379100 | 10310 | 2016 | $800,000 | |
| 3 | Add $200,000 of 2015 appropriations to Mobility-Capital BCL for the Adaptive Signal Control CIP project | | | | SDOT | Mobility-Capital | 19003 | 10310 | 2015 | | $200,000 |
| 4 | Add $800,000 of 2016 appropriations to the Mobility-Capital BCL for the Adaptive Signal Control CIP project | | | | SDOT | Mobility-Capital | 19003 | 10310 | 2016 | | $800,000 |

# Seattle Department of Transportation

## Adaptive Signal Control Implementation

| | | | |
|---|---|---|---|
| **BCL/Program Name:** | Mobility-Capital | **BCL/Program Code:** | 19003 |
| **Project Type:** | New Facility | **Start Date:** | Q1/2015 |
| **Project ID:** | T.B.D. | **End Date:** | Q4/2019 |
| **Location:** | | | |
| **Neighborhood Plan:** | Not in a Neighborhood Plan | **Council District:** | 7 |
| **Neighborhood District:** | In more than one District | **Urban Village:** | In more than one Urban Village |

This project implements adaptive signal control (ASC) in the Seattle Center and South Lake Union area, and supports integrated corridor management on Denny Way, Mercer, and SR-99 north tunnel access. Phase 1 begins operation of 31 intersections on Mercer, Valley, and Roy that have been built as part of the Mercer project. Phase 2 includes 17 intersections along the Denny Way corridor. Phase 3 includes several connector streets between Mercer and Denny Way, including Elliott Ave, Queen Anne Ave N, Broad St, Dexter Ave N, Westlake Ave N, Fairview Ave N, 1st Ave N, 5th Ave N, and 9th Ave N. The $1 million of identified funding is to complete Phase 1 of the project. SDOT has identified $510,000 of funding for Phase 2 design of the Denny Way infrastructure through an anticipated Puget Sound Regional Council (PSRC) grant and resources in SDOT's ITS program, which are not included in the appropriations below.

| | LTD Actuals | 2014 Rev | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Revenue Sources** | | | | | | | | | |
| Commercial Parking Tax | 0 | 0 | 200 | 800 | 0 | 0 | 0 | 0 | 1,000 |
| To be determined | 0 | 0 | 0 | 0 | 4,800 | 3,600 | 600 | 0 | 9,000 |
| **Total:** | 0 | 0 | 200 | 800 | 4,800 | 3,600 | 600 | 0 | 10,000 |
| **Fund Appropriations/Allocations** | | | | | | | | | |
| Transportation Operating Fund | 0 | 0 | 200 | 800 | 0 | 0 | 0 | 0 | 1,000 |
| **Total*:** | 0 | 0 | 200 | 800 | 0 | 0 | 0 | 0 | 1,000 |
| **O & M Costs (Savings)** | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**This detail is for information only. Funds are appropriated in the budget at the Budget Control Level. Amounts are in thousands of dollars.*