



DATE: February 23, 2021

TO: City Council

FROM: Director of Public Works

SUBJECT: I-880/Winton Ave and I-880/A Street Interchange Improvement Project:
Select Preferred Alternative for the A Street Improvements to Present to
Alameda County Transportation Commission for the I-880/Winton Ave and
I-880/A Street Interchange Improvement Project

RECOMMENDATION

That Council reviews this report and selects a preferred project alternative for the A Street Improvements to present to Alameda County Transportation Commission (Alameda CTC) to move forward to the environmental document project phase.

SUMMARY

The City, in partnership with Alameda CTC, the implementing agency, and the California Department of Transportation (Caltrans) propose to provide interchange improvements at the Winton Avenue and A Street interchanges along the I-880 corridor.

There are several alternatives proposed to add an auxiliary lane on I-880 in both directions between the Winton Avenue and A Street interchanges, along with interchange improvements. After a cooperative evaluation with the Project Development Team, Caltrans, Alameda CTC, and City staff, the project team is proposing Mainline improvements to the Caltrans freeway right-of-way, one improvement scenario on Winton Avenue (Alternative W2) and three improvement alternatives (Alternatives A1, A2, and A3) on A Street as shown on Attachment III. All proposed alternatives are compared to the no-build scenario or existing condition in order to measure the impacts of each alternative. Staff is only seeking direction from Council on the three A Street alternatives since the project team has already narrowed down the proposed improvements for the Mainline and Winton Avenue areas. The following provides a summary of the Mainline, Winton Avenue, and three A Street alternatives:

Mainline Improvements. Mainline improvements would include restriping of the existing outside shoulder of I-880 along the I-880 mainline between the I-880/Winton Avenue and I-880/A Street interchanges to provide one auxiliary lane in each direction.

Winton Avenue Improvements. Alternative W2 proposes to convert the existing I-

880/Winton Avenue Interchange from a full clover leaf to a partial clover leaf configuration. Partial clover leaf (Par-Clove) interchanges provide better traffic operations with minimum impact to right-of-way and environmental.

A Street Improvement Alternatives. The following provides a summary of each of the three A Street improvement alternatives at I-880/A Street interchange:

- Alternative A1 would modify the interchange ramp terminals from a signal control to a roundabout control.
- Alternative A2 includes removal of the existing sidewalks next to the travel lanes and restriping A Street to provide separate turn lanes for ramp turning movements in both directions. This scenario would provide six lanes under the existing A Street overcrossing.
- Alternative A3 includes removal of the existing sidewalks next to the travel lanes and widening existing A Street travel lanes while maintaining the existing five lane configuration under the A street overcrossing.

An analysis of performance measures indicates that Alternative A1 has higher safety benefits, but higher delay and initial capital costs compared to the other alternatives. The roundabout design is very challenging as it increases the number of conflict points for non-motorized users, pedestrians, and bicyclists, and especially those with disabilities. It will present unique challenges to safety and accessibility concerns and it is not a community preferred alternative. Alternative A2 improves safety when compared to the no-build alternative and provides better traffic operations compared to the other alternatives. Alternative A3 is comparable to the no-build alternative in delays and also improves safety by providing better pedestrian and bicycle facilities.

Staff's recommended alternative is Alternative A2 because it improves safety, improves pedestrian and bicycle connectivity, minimizes right-of-way impacts, has community support, is the least costly in terms of construction, and has the lowest post-implementation traffic operations impacts in terms of delay. All of which meet the Purpose and Need of the project. Alternative A3 is staff's second preferred alternative for similar reasons, although future traffic operations will not be as improved under this alternative when compared to Alternative A2.

Staff requests that Council selects a preferred alternative for the A Street interchange based on the information provided within this report and the accompanying presentation.

BACKGROUND

The City, in partnership with the Alameda CTC, the implementing agency, and Caltrans, who owns and operates I-880, propose to provide interchange improvements at the Winton Avenue and A Street interchanges along the I-880 corridor. The I-880 Interchange Improvements (Winton Avenue and A Street) Project (Project) would include:

- Reconfiguring the I-880 interchanges at Winton Avenue and A Street to enhance access to the surrounding residential, retail, and commercial land uses;
- Improving pedestrian and bicycle facilities at both interchanges;
- Providing northbound and southbound auxiliary lanes along the main line between the A Street interchange and the Winton Avenue interchange; and,
- Providing new signalized intersections at Winton Avenue ramp terminals and modifying ramp terminal intersections at A Street to improve traffic flow, reduce congestion, and make intersections accessible and safer for pedestrians and cyclists.

The project team developed a Project Study Report-Project Development Support (PSR-PDS) document, which was approved by Caltrans in October 2019. The PSR-PDS document established the purpose and need of the project and developed several conceptual design alternatives for further evaluation during the Project Approval & Environmental Document (PA&ED) phase. As part of this phase of work, staff and Alameda CTC solicited feedback for the alternatives under consideration to establish a set of preferred alternatives from the PSR-PDS document. These preferred alternatives will be taken forward through the completion of the technical studies and completion of the PA&ED phase.

The City was a part of the project development and was consulted during the preparation of the PSR-PDS document to ensure that Context Sensitive Solutions have been developed and proposed design solutions are consistent with local community values, character, and contextual setting as envisioned by the City. Multiple stakeholder outreach meetings were held since the project's inception with local advocacy groups, business owners, and local residents. Furthermore, the Project is consistent with the City's 2040 General Plan and the City's recently adopted Bicycle and Pedestrian Master Plan.

Council Infrastructure Committee

Design alternatives were first presented to the Council Infrastructure Committee (CIC) on January 22, 2020¹. Following revisions per CIC feedback and comments from Caltrans, staff presented a project update to CIC on July 22, 2020². Since July 2020, the design team has worked on addressing additional feedback from Caltrans pertaining to safety concerns regarding the A Street alternatives. Meanwhile, during the past eight months, City staff continued discussions with Southland Mall landowners on the Winton Avenue alternatives. In January 2021, landowners from the Sears parcel provided feedback that they do not support a direct access from the interchange into the Southland Mall property.

The conceptual alternatives currently under consideration in the PA&ED phase are presented below.

DISCUSSION

Several alternatives are proposed to add an auxiliary lane on I-880 in both directions between

¹ <https://hayward.legistar.com/LegislationDetail.aspx?ID=4310997&GUID=F2D57ED3-5F0A-45B4-9D33-E415F419059B&Options=&Search=>

² <https://hayward.legistar.com/LegislationDetail.aspx?ID=4595743&GUID=71FDE319-6852-477E-AF53->

the Winton Avenue and A Street interchanges along with interchange improvements. After cooperative evaluation with the Project Development Team, Caltrans, Alameda CTC, and City staff for all proposed alternatives, the project team is proposing one improvement alternative for the I-880/Winton Avenue intersection (Alternative W2) and three improvement alternatives (Alternatives A1, A2 and A3) for the I-880/A Street intersection. All proposed alternatives are compared to the no-build scenario or existing condition to measure the impacts of each alternative. Staff is only seeking direction from Council on the three A Street alternatives since the project team has already narrowed down the proposed improvements for the Mainline and Winton Avenue areas. Exhibits for the alternatives are attached to this report (Attachment II) and described as follows:

Mainline Improvements

Mainline improvements would include restriping of the existing outside shoulder of I-880 along the I-880 mainline between the I-880/Winton Avenue and I-880/A Street interchanges to provide one auxiliary lane in each direction. The new auxiliary lanes would be approximately 1,500 feet long, would not require any additional right-of-way (ROW) acquisitions to construct and would not extend beyond the two interchanges.

Winton Avenue Interchange

With the current interchange configuration, major weaving occurs between the local and mainline locations during the AM and PM peak periods. To eliminate the weaving and improve the interchange operations, various interchange concepts were developed and evaluated based on the peak period volumes and intersection spacings. The original interchange alternatives included a direct access ramp from the southbound off ramp to Southland Mall, providing triple left turn lanes on Winton Avenue at Southland Mall Drive, dual Roundabouts (RAB) and a Partial Clover Leaf interchange (Par-Clove). However, based on the design year future forecast volumes, right-of-way and environmental impacts, the direct access ramp, triple left turn, and RAB alternatives were eliminated.

At this location, a Par-Clove interchange provides better traffic operations and minimum impact to right-of-way and environmental aspects. The existing I-880/Winton Avenue Interchange will be converted from a full clover leaf to a partial clover leaf configuration as shown in Attachment II.

Improvements to the I-880/Winton Avenue Interchange would include:

- Removal of the existing I-880/Winton Avenue Interchange southbound loop off-ramp and northbound loop off-ramp;
- Reconstruction of sidewalk and bridge railing;
- Construction of additional vehicle storage by lengthening the existing two left turn lanes at Southland Drive in the westbound direction;
- Construction of 5-foot-wide sidewalks and 6-foot-wide Class IV bike lanes with a 3-foot buffer in both directions between Southland Drive and Santa Clara Street;
- Reconfiguration of ramp terminals and install new traffic signals; and
- Addition of ramp meters and High-Occupancy Vehicle (HOV) preferred lanes on loop

and diagonal ramps.

The table below shows the estimated capital costs for Alternative W2 when compared to the no-build alternative.

Project Capital Costs	<u>No-Build</u> Full Clover Leaf Interchange	<u>W2</u> Par-Clove Interchange
Capital Costs (Construction and ROW)	-	\$34M

A Street Interchange

Currently, both I-880 southbound and northbound ramp intersections are controlled by one controller with split phases for all movements at the intersections. The westbound left/through movement at the southbound ramps has an overlap phase and eastbound left/through movement has an overlap phase at the northbound ramps. The proposed alternatives are as follows:

Alternative A1 includes double roundabouts at the I-880/A Street interchange and improvements described below. Improvements at the I-880/A Street interchange under Alternative 1 would modify the interchange ramp terminals from a signal control to a roundabout control as shown in Attachment II.

Alternative A1 would include the following improvements:

- Reconfiguration of ramp terminals at A Street to construct double-roundabouts at the I-880/A Street Interchange ramp intersections and widen A Street, which requires ROW acquisition of two existing commercial properties;
- Reconstruction of slope wall underneath the A Street overpass to construct two 12-foot wide Class;
- Construction of shared pedestrian and bicycle paths between the existing bridge columns and abutment;
- Removal of access to/from Arbor Avenue to A Street and convert Arbor Avenue into a cul-de-sac;
- Installation of a HAWK signal to improve pedestrian crossing at the intersection of Happyland Avenue and A Street; and
- Modification to the A Street access at Garden Avenue to remove the left turn access to Garden Avenue from westbound A Street and provide a right-in/right-out only access from Garden Avenue to A Street;

Alternative A2 includes removal of the existing sidewalks next to the travel lanes and restriping A Street to provide separate turn lanes for ramp turning movements in both directions. The existing sidewalk is replaced by a 12-foot-wide shared pedestrian and bicycle path between the existing bridge columns and abutment.

Alternative A2 would include the following improvements:

- Removal of sidewalk and reconstruction of A Street under the I-880/A Street Interchange overpass to allow for dedicated left turn lanes in each direction;
- Modification of the intersection of South Garden Avenue and A Street to an exclusive right turn in/right turn out intersection;
- Reconfiguration of the Arbor Avenue intersection at A Street and conversion to a cul-de-sac; and
- Installation of a HAWK signal to improve pedestrian crossing at the intersection of Happyland Avenue and A Street.

Alternative A3 includes removal of the existing sidewalks next to the travel lanes and widening existing A Street travel lanes. The existing sidewalk would be replaced by a 12-foot-wide shared pedestrian and bicycle path.

Alternative A3 would include the following improvements:

- Removal of sidewalk and restriping of A Street under the I-880/A Street Interchange overpass to provide wider lanes between the ramp intersections;
- Addition of 6-foot Class II Bike lanes on A Street to the east and west of the I-880/A Street Interchange within the Project limits;
- Modification to the intersection of South Garden Avenue and A Street to an exclusive right turn in/right turn out intersection; and
- Installation of a HAWK signal to improve pedestrian crossing at the intersection of Happyland Avenue and A Street.

Alternative Comparisons

The following is a brief overview of the performance measures used to calculate costs as a basis of comparison for the alternatives performed by the consultant team. Since the Winton Avenue interchange has only one alternative, this section is focused on the three alternatives at the A Street interchange.

Each of the A Street alternatives are evaluated for the following performance measures:

- Safety – measures the societal cost associated with the predicted number and severity of collisions. The data for this measure is derived from safety analysis report prepared for the project;
- Delay – measures the societal cost associated with the vehicle-hours delayed in traffic. The data for this measure is derived from the draft Traffic Operations Analysis Report (TOAR) submitted in July of 2020; and
- Initial Capital Costs – measures the capital costs needed for project implementation.

Safety Benefits: The table below is the monetized annual safety cost for each of the A Street interchange alternative. Each of the Cal-B/C economic parameter cost is multiplied by the rate of each injury. The cost per incident is based on the Cal-B/C Economic parameters that

are published on Caltrans website.

Injury Severity	Cal-B/C Economic Parameter Values (Cost per Incident)	Annual Societal Cost based on Safety Analysis			
		<u>No-Build</u> Signal Interchange	<u>A1</u> Roundabout Interchange	<u>A2</u> 6-Lane Signal Interchange	<u>A3</u> 5-Lane Signal Interchange
FI Crashes					
K (Fatal)	\$9,800,000	\$94,144	\$27,598	\$82,691	\$84,638
A (Severe Injury)	\$467,000	\$87,000	\$20,422	\$66,471	\$75,530
B (Moderate Injury)	\$127,100	\$174,239	\$39,892	\$129,991	\$150,847
C (Minor Injury)	\$6,500	\$330,590	\$77,471	\$257,452	\$286,323
PDO Crashes					
O (Property Damage Only)	\$4,374	\$64,669	\$55,780	\$39,906	\$45,860
Total Annual Safety Cost		\$750,641	\$221,164	\$576,511	\$643,199

Delay Costs: The table below monetizes the annual delay costs for each of the A Street alternatives. The total peak period delay for each of the alternative is multiplied by 260 working days to develop annual peak period delay for the A Street segment in the study for this project. Consistent with Caltrans Life-Cycle Benefit-Cost Analysis Economic Parameters, a value of \$19.70 per vehicle-hour delay is used to calculate the annual societal delay cost for each alternative.

Delay Costs	<u>No-Build</u> Signal Interchange	<u>A1</u> Roundabout Interchange	<u>A2</u> 6-Lane Signal Interchange	<u>A3</u> 5-Lane Signal Interchange
Total Delay (Veh-Hours)	4,164	4,944	4,035	4,403
Delay Cost (Per Year)	\$22M	\$26M	\$21M	\$23M

Initial Capital Costs: The initial capital cost performance measure estimates the capital costs needed to construct the proposed A Street interchange alternatives. The following table shows the initial capital costs developed by Kimley-Horn.

Project Capital Costs	<u>No-Build</u> Signal Interchange	<u>A1</u> Roundabout Interchange	<u>A2</u> 6-Lane Signal Interchange	<u>A3</u> 5-Lane Signal Interchange
Capital Costs (Construction and ROW)	-	\$26M	\$19M	\$19M

The above analysis of performance measure indicates that Alternative A1 has higher safety benefits, but higher delay and initial capital costs compare to other alternatives. The roundabout design is very challenging as it increases the number of conflict points for non-

motorized users, pedestrians, and bicyclists, and especially those with disabilities. It will present unique challenges to safety and accessibility concerns and it is not a community preferred alternative.

Alternative A2 improves safety when compared to the no-build alternative and provides better traffic operations compared to other alternatives. Alternative A2 improves safety by providing better pedestrian and bicycle facilities.

Alternative A3 is comparable to no-build alternative in delays and improves the safety by providing better pedestrian and bicycle facilities.

Staff's recommended alternative is Alternative A2 because it improves safety, improves pedestrian and bicycle connectivity, minimizes right-of-way impacts, has community support, is the least costly in terms of construction, and has the lowest post-implementation traffic operations impacts in terms of delay. All of which meet the Purpose and Need of the project. Alternative A3 is staff's secondary preferred alternative for similar reasons, although future traffic operations will not be as improved under this alternative when compared to Alternative A2.

Staff requests that Council selects a preferred alternative for the A Street interchange based on the information provided within this report and the accompanying presentation.

ECONOMIC IMPACT

Both interchanges serve vital commercial and retail areas of the City. The Project(s) would improve access and reduce congestion-related delays both on I-880 and local streets and address on-going concerns related to access to Southland Mall. By improving access and reducing delay, the Project is expected to have positive impacts on local businesses and retail areas.

FISCAL IMPACT

The Project is its initial stage and cost estimates are preliminary. The Project is currently not expected to have a direct fiscal impact on the City. The project utilizes Measure BB funding through Alameda CTC's Transportation Expenditure Plan.

Preliminary cost estimates for the project as a whole are as follows:

1) Planning/Scoping	\$1.8 million
2) Preliminary Engineering/Environmental	\$3.5 million
3) Final Design	\$11 million
4) Right of Way	\$8 million
5) Construction	\$65 million

Total Project Cost **\$89.3 million**

The Alameda CTC's Transportation Expenditure Plan shows Measure BB funding as a line item

for these projects. Approximately \$5.3 million in Measure BB funds were allocated for the pre-scoping, Project Initiation Document (PID), Project Approval, and the Environmental Document phase. Depending on the preferred alternative, there may be a shortfall in funding. Funding sources to cover the shortfall have not been identified and will need to be determined before starting the detailed design and right-of-way acquisition process.

STRATEGIC ROADMAP

This agenda item supports the Strategic Priority of Improve Infrastructure. Specifically, this item relates to the implementation of the following projects(s):

Project 5, Part 5a: Maintain and Improve Pavement; Maintain Pavement Condition Index (PCI) at 70.

Project 8, Part 8a: Implement the Bike & Ped Master Plan; Add 2 miles of sidewalks per year.

Project 8, Part 8b: Implement the Bike & Ped Master Plan; Add 10 miles of bike lanes per year.

SUSTAINABILITY FEATURES

The Project will reduce regional traffic diversions to City streets and therefore reduce carbon and greenhouse gas emissions and vehicle miles travelled within the City. The Project will also improve bicycle and pedestrian facilities and connections through both interchanges and is consistent with the City's Bicycle and Pedestrian Master Plan.

Due to the lack of bike lanes and incomplete sidewalks, gaps currently exist along both Winton Avenue and A Street at I-880. The project will fill these gaps by improving bicycle facilities and sidewalks along both sides of the freeway at both interchanges and connect them to existing bicycle and pedestrian facilities. These improvements will be consistent with the goals and objectives of the 2020 Bicycle and Pedestrian Master Plan.

PUBLIC CONTACT

Alameda CTC and City staff held multiple stakeholder meetings comprised of business owners, Southland Mall management, residents, interested community members, and bicycle advocates throughout the development of the PSR-PDS document.

Alameda CTC and City staff have also met with Southland Mall landowners several times during the last eight months to discuss the alternatives at Winton Avenue and their impacts to the mall property.

NEXT STEPS

The Project is currently in the Project Approval & Environmental Document (PA&ED) phase.

The Project Report & Environmental Document will be developed once a preferred alternative is selected and technical studies completed. The tentative major project milestones are as follows:

Environmental Technical Studies	Summer 2021
Draft Project Report	Summer 2021
Draft Environmental Document	Fall 2021
Final Environmental Document & Project Report	Winter 2022
Plans, Specs & Estimate	TBD

Prepared by: Jorge Simbaqueba, Senior Transportation Engineer

Recommended by: Alex Ameri, Director of Public Works

Approved by:



Kelly McAdoo, City Manager