

CITY OF COOS BAY
JOINT CITY COUNCIL / URA WORK SESSION
Agenda Staff Report

MEETING DATE February 28, 2017	AGENDA ITEM NUMBER
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TO: Mayor Benetti and City Councilors

FROM: Jim Hossley, Public Works Director 

THROUGH: Rodger Craddock, City Manager

ISSUE: Discussion of Street Repair/Restoration Projects for Fiscal Year Ending 2017

SUMMARY:

The Mayor and Councilors have requested that the City pave Golden Avenue in the vicinity of the Post Office between 4th and 7th Streets. Cost will depend upon the level of repair or restoration applied to the project as well the need to replace City wastewater and/or storm pipes.

Public Works staff recommends the City also move forward on repair of Coos River Highway where slope failure has caused the outside (north edge) of the street surface to drop several inches.

ACTION REQUESTED:

Provide staff with direction regarding the level of repair/restoration for Golden Avenue. For both the Coos River Highway and Golden Avenue projects, staff will bring forward the engineering design contracts (if needed) and the construction contracts for Council approval at future regular Council meetings.

BACKGROUND:

As a whole, City streets have suffered from the lack of adequate funding to properly maintain them. The Mayor and Councilors have requested that the City pave Golden Avenue in the vicinity of the Post Office between 4th and 7th Streets. This portion of Golden Avenue consists of the U.S. Post Office, Stuntzner Engineering, Marshfield High School practice field and single family residents. Rick Skinner inspected this street and came up with some options for consideration including cost estimates for each. He observed that the street gets relatively heavy traffic with the high school and Post Office nearby. Golden Avenue from 4th Street to 5th Street is 300-feet long and 44-feet wide with sidewalks on both sides and curb & gutter and has a Pavement Condition Index (PCI) rating of 56. This portion of the street is concrete with an asphalt overlay that is starting to delaminate from the concrete surface. From 5th Street to 7th Street it is 425-feet long and 34 feet wide. It appears to be 12-inches of base rock and 2-lifts of asphalt (4-inches). This portion of the street has a PCI rating of 63 (Note that a street in fair condition has a PCI of 56-70, a street in poor condition has a PCI of 41-55). There are no sidewalks from the Post Office to 7th Street on the north side of the street.

At my request, Rick prepared three different options regarding level of street repair for Council consideration. One for as cheap as you can get, patch & overlay, with a 7-10-year life expectancy, another with using Best Management Practices (BMP), with an 18-20-year life expectancy, and the other, re-constructing the street back to new condition (new curb & gutter, sidewalks, driveways, ADA ramps, aggregate and Asphalt paving), with a 25-year life expectancy.

Number 1 is relatively inexpensive and consists of patching and overlay. Because it does not replace the subgrade below the pavement, the new surface could see surface cracking within a year and resulting in the street surface looking like it does today within 7 to 10 years.

Number 2 uses BMP including cold plane removal, application of pavement fabric, asphalt leveling, place a 3-inch overlay from 4th to 5th Street, place a 2-inch overlay from 5th Street to 7th Street, and replace 2-driveways. The use of the pavement fabric should help retard the reflection of underlying cracks in the underlying concrete. Eventually the cracks will reflect up to the surface, however it may be several years.

Number 3 is re-constructing the street back to new condition (remove existing concrete and asphalt, construct new curb & gutter, new sidewalks, driveways, ADA ramps, 10-inches of aggregate base and 3-inches of asphalt). This street has a life expectancy of 25 years unless properly maintained with surface rejuvenation products (e.g. slurry seal) which will extend the life of the street. This project would also require engineering design.

None of these options include repair to the existing drainage system. We are attempting to determine the condition of the existing storm drain pipe, however this time of year, high tides and rainfall have made it difficult to see the pipe using the TV camera. Chances are good that it should be replaced.

Another street project needs immediate attention. The north edge of the westbound lane of Coos River Highway has slumped due to slope failure. The road is in need of repair to ensure the road remains open to 2-way traffic. Work would include replacement of a culvert pipe, installation of drainage control on the north side of the street, grinding off the top 2 to 4 inches of pavement, and repaving with 2 to 4 inches of asphalt. The length of the repair is approximately 200 linear feet. This repair will not alleviate the slope stability problem and the it will fail again in the future. Staffs hope is that controlling surface drainage flow into the road bed will slow future slope failures.

BUDGET IMPLICATIONS:

The Golden Street project cost estimates depend upon the scope of work to be completed. The cost estimate for option 1 is approximately \$50,000. The cost estimate for option 2 is approximately \$75,000. The cost estimate for option 3 is approximately \$270,000. Option 3 would also require some engineering support which will range from 10% to 20% of the construction cost. The cost for all options do not include drainage improvements or repairs.

Staff estimates that the cost for the repair to Coos River Highway to be approximately \$200,000. This includes the cost for drainage system repairs.

Funds for the projects will come from Fund 16, the Street Improvement Fund. The source of the money to be used for both projects will be the State of Oregon Surface Transportation Program funds.

RICK SKINNER, SCCS (SUPERIOR CONSTRUCTION CONSULTING SERVICES)

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February 15, 2017

Jim Hossley
City of Coos Bay
500 Central Ave.
Coos Bay, OR 97420

Dear Jim Hossley

SCCS is grateful for the opportunity to provide consulting for the Golden Avenue project located in Coos Bay, OR. SCCS has 40-years' construction experience in Coos Bay.

As discussed SCCS has provided three proposal for you as requested;

- The first is the bare minimums (patch and overlay),
- The second using BPM's (Best Management Practices), including cold plane removal of existing asphalt from the concrete surface, placement of pavement fabric over vertical cracking, 1-inch of asphalt leveling, with a 3-inch overlay and replacement of two driveways.
- The third proposal would be to re-construct the entire street (excavation, placement of 10-inches of aggregate base rock, new sidewalks, new driveways, new ADA ramps, and placement of two 2-inch lifts (total of 4-inches) of asphalt.

Thank you for using SCCS, I hope the information provided is useful to you and the City Council.

Sincerely,

Rick Skinner, SCCS (SUPERIOR CONSTRUCTION CONSULTING SERVICES)

Aggregate vs. Asphalt vs. Concrete...Which is Stronger?

There is a common belief that concrete pavements are stronger than asphalt pavements. The reason for this misconception is that comparisons are not made on equivalent designs. The traffic-carrying ability of asphalt or concrete pavements is approximately the same for each inch of pavement thickness.

To illustrate how this relates to pavement design, the concept of Structural Number must be considered. The Structural Number (SN) is an empirical strength value assigned to a particular material. The SN has no units. It is a relative number that is used to compare different materials.

To establish a standard with which to compare the structural numbers, the strength of a graded aggregate base is assigned a value of 1.0 for each inch of thickness. On this scale a 6-inch base would have a Structural Number of 6.0 and a 10-inch thick base would have a SN of 10.

A dense -graded asphalt pavement is assigned a Structural Number of 3.0 or three times as strong per inch of thickness as the graded aggregate base. For example, a three-inch asphalt base could be substituted for a nine-inch aggregate base and provide the same support for the traffic.

A typical 3,000-psi concrete slab would also be assigned a structural number of 3.0, per inch of thickness. Therefore, a 4-inch concrete pavement and a 4-inch asphalt pavement have the same load-carrying capabilities.

A sidewalk is designed with 4-inches of base rock and 4-inches of concrete, which would have a Structural Number rating of 20. Would we want to drive cars & trucks over our sidewalks? Should we design our streets stronger than our sidewalks? Yes.

- ❖ Golden Avenue consist of the U.S. Post Office, Stuntzner Engineering, Marshfield High School practice field and single family residents.
- ❖ The Street get as much traffic as any street in Coos Bay with the High School and Post office nearby.
- ❖ Golden Avenue from 4th Street to 5th Street the street is 300-feet long and 44-feet wide with sidewalks on both sides and curb & gutter and has a PCI rating of 56. This portion of the street is concrete with an asphalt overlay that is starting to delaminate from the concrete surface.
- ❖ **This portion of the street would have a Structural Number of 30 (8-inches of concrete x 3 and 2-inches of asphalt x 3 = 30) but deteriorated from traffic fatigue.**
- ❖ Golden Avenue from 5th Street to 7th Street is 425-feet long and 34 feet wide. It appears to be 12-inches of base rock (past experience says its bar run) and 2-lifts of asphalt (4-inches).
- ❖ **This portion of the street has a PCI rating of 63.**
- ❖ **This portion of the street would have a Structural Number of approximately 24 (12-inches of aggregate x 1 and 4-inches of asphalt x 3 = 24) but deteriorated from traffic fatigue.**

Street/Road Condition

Good	Satisfactory	Fair	Poor	Very Poor	Serious	Failed
86 – 100	71 - 85	56 – 70	41 – 55	26 - 40	11 – 25	0 - 10

Curb & Gutter Condition;

Good	Satisfactory	Fair	Poor	Very Poor	Serious	Failed
86 – 100	71 - 85	56 – 70	41 – 55	26 - 40	11 – 25	0 - 10

Sidewalk condition; There are no sidewalks.

Good	Satisfactory	Fair	Poor	Very Poor	Serious	Failed
86 – 100	71 - 85	56 – 70	41 – 55	26 - 40	11 – 25	0 - 10

ADA Ramps; there is one ADA ramp with Detectable warning at 4th & Golden but not 1:12 slope required.

Good	Satisfactory	Fair	Poor	Very Poor	Serious	Failed
86 – 100	71 - 85	56 – 70	41 – 55	26 - 40	11 – 25	0 - 10

- Golden Avenue is 725 feet long and varies from 34 feet wide to 44 feet wide at the Post Office.
- Comments/Recommendations; Golden Avenue is a busy street, used by the Post Office and Marshfield High School students traveling to school, the prefect street to show the public how their tax dollars are spent.
- But everyone will have an opinion, did you spend too much or not enough, did it take too long and impede traffic? Your decision.
- There are no sidewalks on from the Post Office to 7th Street on the north side of the street.

We are preparing three estimates; one for as cheap as you can get, patch & overlay, with a 7-10-year life expectancy, another with using BMP (Best Management Practices), with a 18-20-year life expectancy, and the other, Re-constructing the Street back to new condition (new curb & gutter, sidewalks, driveways, ADA ramps, aggregate and Asphalt paving), with a 25-year life expectancy.

Estimate #1 – Patch & Overlay

Cost Estimates;

❖ Mobilization	\$3,000.00
❖ TP&DT	\$500.00
❖ Asphalt Patching	\$2,100.00
❖ Asphalt Paving (2-inches)	\$30,800.00
❖ Approach	\$1,000.00
❖ Tack Coating	\$1,254.00

Total Cost: \$48,664.00

Structural Number – 36, though fatigued (8-inches x 3 = 24, + 2-inches x 3 = 6, + 2-inches x 3 = 6, total 36.

Project completion time; 2-days maximum.

Estimate #2 – Using BMP’s (cold plane removal, pavement fabric, asphalt leveling and 3-inch overlay to 5th Street and 2-inch overlay 5th Street to 7th Street, replace 2-driveways).

Cost Estimates;

❖ Mobilization	\$3,500.00
❖ TP&DT	\$500.00
❖ Driveways	\$3,500.00
❖ Cold Plane Removal	\$8,610.00
❖ Pavement Fabric	\$4,435.00
❖ Asphalt Leveling (1-inch)	\$9,890.00
❖ Asphalt Paving (3-inches)	\$40,810.00
❖ Approach	\$1,000.00
❖ Tack Coating	\$1,254.00

Total Cost: \$73,999.00

Structural Number – 33 (8-inches x 3 = 24, + 1-inch x 3 = 3, + 2-inches x 3 = 6, total 33

Project completion time; 2-3 days’ maximum.

Estimate #3 – Re-constructing the Street back to new condition (new curb & gutter, new sidewalks, driveways, ADA ramps, 10-inches of aggregate base and 3-inches of asphalt).

Cost Estimates;

❖ Mobilization	\$8,000.00
❖ TP&DT	\$5,000.00
❖ Excavation	\$16,005.00
❖ Aggregate	\$39,878.00
❖ Sidewalks	\$56,375.00
❖ Driveways	\$15,750.00
❖ ADA Ramps	\$17,500.00
❖ Curb & Gutter	\$36,250.00
❖ Asphalt Paving (4-inches)	\$75,350.00
❖ Approach	\$1,000.00

Total Cost: \$271,108.00

Structural Number – 22 (10-inches x 1 = 10, + 4-inches x 3 = 12, total 22

Project completion time; 60-days.



Golden Ave. looking east in front of Post Office.



Golden Ave. pavement delamination.



Golden Ave. looking west from 4th Street, pavement delamination at centerline.



The pictures above shown distress and ponding in driveways on south side.



This is actually an alley that would require ADA ramps or converted to a driveway approach.



The pictures above show the condition of the curb & gutter.



Longitudinal cracking of concrete surface below the asphalt paving.



The picture above shows the condition of the intersection of Golden Ave. & 5th Street.



The picture above shows the trench repair the goes the entire length of Golden Ave. from 4th street to 7th Street.



Catch basin condition from previous overlay of Golden Ave.



The picture above shows there are no sidewalks on the north side of Golden Ave. from the post office to 7th Street. The fence would have to be relocated and embankment place to accommodate a 5-foot sidewalk.



More delamination of asphalt from the concrete surface underneath.