**Project Schedule**

<table>
<thead>
<tr>
<th>Event</th>
<th>2010</th>
<th>2011</th>
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<tbody>
<tr>
<td>Prepare Alternatives - Initial Long List of Ideas</td>
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<td>First Community Meeting - Initial Long List Input</td>
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<tr>
<td>Public Input / Initial Screening - Choose Top Three Alternatives</td>
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<td>Second Community Meeting - Top Three Alternatives</td>
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<td>Refine Three Alternatives and Evaluate</td>
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<tr>
<td>Select Preferred Alternative</td>
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<tr>
<td>County Review of Design Report</td>
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<td>Third Community Meeting - Present Preferred Alternative</td>
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<tr>
<td>Board of Commissioners Briefing</td>
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<tr>
<td>Finalize Design Report</td>
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**WHAT’S NEXT:**

- Solicit feedback on top three alternatives - advantages/disadvantages?
- Refine designs and consider public comments to help choose a preferred alternative
- Prepare a report with the final recommendation

- Meet with the community to present the report and preferred alternative
- Identify potential grants and seek funding for design and construction
- Project not yet funded for design, right-of-way, and construction
Purpose and Need Statement

1. PURPOSE

The purpose of the project is to maintain safe, reliable, and efficient mobility for all travel modes using Banner Road Southeast between Olalla Valley Road Southeast and Southeast Banfill Road.

2. NEED

PUBLIC SAFETY

Future roadway settlement and pavement section failures are likely to continue, creating a safety concern for the driving public who might use the roadway prior to it being closed for repair.

In addition, the current roadway has no provisions for pedestrians or bicyclists. The narrow 9-foot lanes do not allow for two cars to pass safely when a bicyclist or pedestrian is present, and there is no safe refuge for pedestrians when cars approach.

ONGOING MAINTENANCE

This existing roadway, located at the top of high bank waterfront, has been settling due to the instability of the near vertical bank. In addition, a section of the roadway is at the toe of a near vertical cut slope that is prone to sloughing. Ongoing maintenance and repair is problematic and expensive.

ENVIRONMENTAL DEGRADATION

The continued deterioration of the high bank waterfront distributes riprap and other fill material placed at the toe of the slope into Puget Sound.

The existing roadway has no provisions to formally treat stormwater prior to it discharging into Puget Sound.

ROADWAY DESIGN DEFICIENCIES

This segment of Banner Road Southeast does not meet current Kitsap County standards for an arterial roadway classification in several ways:

- The narrow roadway width
- Roadway grades exceeding 10 percent
- Sharp horizontal curve radii near Southeast Banfill Road
- Sight distance limitations at the Southeast Banfill Road intersection and at an existing vertical curve
What We Heard
October 2010 Public Meeting

Summary of public comments from the first open house, and county response.

A. Do not demolish any homes and limit impact to private property.
   This was reflected in screening applied to the alternatives and ultimately affected the decision on which three alternatives should move forward. The alternatives for further study do not demolish any homes. All of the alternatives (except closure) involve purchasing portions of private property to accommodate a new or realigned roadway.

B. Leave existing roadway alone and fix existing guardrails.
   A guardrail project was attempted a few years ago; however, the soft unconsolidated soils combined with the steep slope at the edge of the roadway prohibited installation of a guardrail system and the construction was cancelled.

C. Keep improvements within the existing Banner Road footprint.
   The existing Banner Road width is approximately 18’ with minimal or non-existent shoulders. The existing width does not meet current design standards even for a one-way roadway. There is not an acceptable roadway section that would accommodate motorized vehicles within the existing footprint.

D. Make Banner Road “local access only” through the use of signage and/or physical barriers.
   Subjecting the roadway to less traffic will not prolong the life of the roadway. In addition, historically, local access signage is difficult to enforce, and generally doesn’t influence traffic patterns significantly. Physical barriers are the equivalent of closing the road.

E. Convert Banner Rd to One Way Road.
   First, this does not address the structural stability problems on Banner Road Second, the width required for a one way roadway would still be wider than the roadway that exists today, because the paved lane and shoulder must be adequate so an emergency vehicle can pass oncoming traffic. When combined with the improvements needed to upgrade Price Road to accommodate the other direction of the one way traffic, this alternative is more expensive than a two way roadway along the existing alignment.

F. The County can’t close the roadway. Residents need property access.
   If Banner Road is not improved, the County will continue to maintain the road until which point a repair is no longer feasible. At that point, if there is inadequate funding for the scope of repair needed, the road would be closed. Access to the private properties would be provided by new driveway construction on either side of the closure.

G. Close Banner Road now due to narrow width and outdated guardrail.
   Closing a County road is a big impact to the community. Closing the road would also increase response times for emergency services. Price Road would also likely be closed as it cannot safely handle additional traffic.

H. Widen this section of Banner Road to safely accommodate all modes of users while providing a scenic view.
   Whatever reconstruction solution is reached, the design will accommodate all modes of users, consisting of adequate shoulder(s) for pedestrians and bikes. This is a requirement of County road standards. The desire for the roadway view will be a factor in the social acceptance criteria.

I. Alternatives extending Culver Street to Olalla Valley Road will increase traffic, no longer making it a quiet county road.
   The public road does have adequate capacity to handle the additional traffic. Minor shoulder widening may be needed.

J. Provide construction costs and more detail prior to ranking alternatives.
   The first public meeting, while early in the process, was helpful in providing feedback as to what was important to the community, thoughts on the initial list of alternatives, and provided a forum for suggesting additional alternatives. The website ranking was a tool to gauge public opinion on the initial alternatives. It was only one aspect of the evaluation criteria and did not dictate which alternatives were chosen for further study. Cost information was developed after the first open house; it was shown on the County’s website and was used to help refine the list of alternatives for further study.

K. When do you intend to start the project?
   There is no design or construction funding yet allocated for the project. The earliest the project could get funding is during the County’s 2011 Transportation Improvement Plan (TIP) process. The six year TIP coordinates the County’s future plans for road and transportation projects and provides a ranking system to prioritize construction. At the very earliest the project could be included in the 2011 TIP. Due to the expected project cost, the County may need to obtain federal grants or other means of funding to construct the project.
Summary of Roadway Stability
Concerns along Banner Road
Southeast between Southeast Banfill
Road and Olalla Valley Road

May 2011

Banner Road was originally constructed between 1885 and 1912 by cutting into the hillside on the upslope side of the roadway and side casting excavated material downslope to provide a bench for the roadway. This side cast fill has resulted in a layer of loose to medium dense soil underneath portions of the roadway, which is subject to settlement, creep, and sloughing on steep slopes. Sloughing typically occurs when the side cast fill becomes saturated. Geotechnical borings encountered approximately 12 feet of side cast fill near the downslope edge of the roadway. Evidence of instability has been observed over the years, as cracks and small landslides have developed. Most evidence of slope movement has been found between the center of the road to the downslope edge of the road.

Most of the native soil is glacially overconsolidated, resulting in densely compacted, strong soil. However, natural wave action at the slope toe causes slow erosion and steepening of the bank that supports the layer of loose side cast fill. This bank steepening leads to the sloughing and shallow landsliding of the fill soil above it. While the rate of erosion at the bank appears slow, this will be further evaluated during design. Groundwater plays a key role in stability. In general, the more saturated the native and loose fill soil layers become, the weaker and more unstable they are.

The southern half of this roadway segment also has a slope above the roadway that is prone to sloughing material onto the roadway. The soil here is densely compacted glacial soil. As the soil weathers, it loosens and becomes prone to sloughing on the steep natural and cut slopes. We anticipate that typical sloughs from the slopes above the road would be a few cubic yards or smaller.

If the road subgrade is not improved, we anticipate soil creep that causes roadway settlement and cracking will continue. Small landslides that could affect at least one lane likely will occur periodically during exceptionally wet conditions. With this information in mind, improvements for roadway reconstruction to correct these problems could include:

- Constructing a fill wall on the downslope side of the roadway to replace or contain the existing layer of loose material. The wall should be embedded into the underlying dense native soil.
- Installing surface drainage that reduces stormwater infiltration and a subdrain system to collect groundwater underneath the roadway.
- Protecting the cut slope on upslope side of the roadway from weathering using shotcrete. If the cut slope was made at a slope of 3/4 horizontal to 1 vertical, little reinforcement would be needed. We anticipate short dowels would anchor the shotcrete to the cut face. While this proposal would be less steep than what exists today, it would require little encroachment onto private property. Laying the slope back even further to a typical slope of 1 1/2 horizontal to 1 vertical or flatter, which could then be vegetated, would eliminate the need for shotcrete to reduce weathering, but would cause greater property impacts.

These geotechnical observations and recommendations are generally derived from field observations and from four borings performed in the early 1990s for a geotechnical study along this section of Banner Road Southeast. Additional borings are not being performed for this study, but will be necessary for the final design.
## Roadway Design Criteria

<table>
<thead>
<tr>
<th>Federal Roadway Classification for Banner Road SE</th>
<th>Collector Arterial</th>
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<tbody>
<tr>
<td>ADT (Average Daily Traffic) - Current</td>
<td>700</td>
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<tr>
<td>ADT (Average Daily Traffic) - 20 year projection</td>
<td>1000</td>
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### Design Standards:

<table>
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<tr>
<th>Design Vehicle</th>
<th>Single Unit Truck¹</th>
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<tr>
<td>Posted Speed</td>
<td>25 mph</td>
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<tr>
<td>Lane Width</td>
<td>11</td>
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<tr>
<td>Shoulder Width</td>
<td>6</td>
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<tr>
<td>Maximum Roadway Grade</td>
<td>10%</td>
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¹ Single Unit Truck turning radius is similar to a school bus turning radius