

5.0 ENVIRONMENTAL EVALUATION OF ALTERNATIVES

Section 5.0 of this Environmental Screening Technical Report provides a summary of the potential environmental impacts of the “Build” alternatives (Alternatives 2 through 8) evaluated in the MTIS process. This section consists of three sub-sections. First, Table 5-1 presents, in summary format, the associated effects of the eight alternatives when compared to the 14 environmental criteria discussed in Sections 3.0 and 4.0 of this document. The information presented in this table is based upon the detailed discussion in Section 4.0. The second section of this document is a matrix (Table 5-2) prepared by the consultant team which “rates” the impact each alternative has for each criterion identified. The “ratings” range from double negative (- -) to a positive (+) based on the consultant’s assessment and professional judgment. Table 5-2 also notes the likelihood that potential impacts can be mitigated to a level of less than significant. (This assessment is preliminary and subject to more-detailed analysis in future studies; the assessment is for information only.) Finally, the third sub-section presents the key environmental scan findings.

5.1 Comparison of Build Alternatives

Table 5-1 presents a comparison of the build alternatives for each of the environmental criterion as discussed in Section 4.0 of this document. The summary comments are a synthesis of the discussion in Section 4.0 and identify the key issues or areas of concern as appropriate. The reader is directed to Table 5-1 to review the information.

5.2 Comparison of Build Alternatives Impact on the Environment

Table 5-2 presents a rating of each of the build alternatives environmental effects for each criterion discussed in Section 4.0. All ratings are based on a comparison to Alternative 1, No-Build (i.e. how does the Build alternative impact the criterion compared to a no-project scenario). The ratings have been applied as follows:

- A double positive (++) indicates that an environmental benefit is anticipated to occur from implementation of the alternative.
- A positive rating (+) identifies those areas where a potential benefit is anticipated to occur.
- A neutral rating (0) identifies those areas where there is no discernible benefit or impact associated with the alternative for that particular environmental criterion.
- A negative rating (-) identifies those areas where a potential impact is anticipated to occur.
- A double negative (- -) identifies those areas where an impact is assumed to occur with the Build alternative.

This evaluation provides a general comparison of the potential environmental benefits and impacts of the Build alternatives and is not intended to provide a composite “score” for the investment strategies evaluated. The purpose of this exercise is to focus the reader and the public on where the potential benefits and potential impacts reside based on the environmental scan analysis. A final step in this analysis is then presented in the first column of Table 5-2 entitled, “Can it be Mitigated?”. In this column, the consultant’s professional judgment has been applied to determine whether or not the potential or probable impacts can be mitigated.

5.3 Conclusions of the Environmental Screening Exercise

Based on the level of analysis presented in this document and the consultant's professional judgment as applied in the ratings table (Table 5-2), the following conclusions are drawn:

1. There are no fatal flaws associated with any of the investment strategies tested.
2. The investment strategies which consist of constructing a facility or guideway (Alternatives 3, 4, 5, 6, and 7) have greater environmental effects than the No Build alternative (Alternative 1) or the bus-only investment strategies (Alternatives 2 and 8). However, environmental effects are but one criterion for assessing the alternatives and other criteria such as transportation system enhancement, increased accessibility, regional goals, public acceptance/non-acceptance, costs and funding, etc. must also be assessed.
3. There are no environmental effects associated with any of the alternatives that have unavoidable significant adverse impacts -- with one exception. There is a question of whether the rail extension from the Davenport Junction Wye to Natural Bridges is of a nature that it may be perceived as a community disruption for which mitigation may not be effective in reducing the level of effect.

As this document presents information at the screening level, further detailed environmental analysis will be required for any of the investment strategies/build alternatives. Section 6.0 discusses the process and requirements should the communities in Santa Cruz County choose to move forward with a preferred investment strategy.

Table 5-1

COMPARISON OF BUILD ALTERNATIVES

IMPACT CATEGORY	Alternative 2: TSM	Alternative 3: Widen Highway 1 for HOV	Alternative 4: Rail Transit - Watsonville Junction to UCSC via Harvey West	Alternative 5: Rail Transit - Watsonville Transit Center to Harvey West and Natural Bridges	Alternative 6: Busway	Alternative 7: Rail Transit - Downtown Watsonville to Harvey West	Alternative 8: Improved Bus Service
Socioeconomics / Land Use	Transit improvements would not create impact.	Consistent with local and County planning. Potential for numerous residential and commercial displacements due to widening of Hwy. 1.	Consistent with local and County planning. Conjunctive use of Seacliff Beach parking lot as park-and-drive lot. Use of park land at New Brighton, Harvey West Park, and Pogonip Preserve.	Consistent with local and County planning. Conjunctive use of Seacliff Beach parking lot as park-and-drive lot. Potential partial displacement of commercial property (no buildings) at Front/Pacific; use of park land at New Brighton State Beach. Potential neighborhood barrier at Bay/Almar Streets.	Consistent with local and County planning. Potential neighborhood barrier between Bay and Almar Streets.	Consistent with local and County planning. Conjunctive use of Seacliff Beach parking lot as park-and-drive lot. Use of park land at New Brighton State Beach.	Transit improvements would not create impact.
Noise and Vibration	Transit improvements would not create impact.	Potential noise impacts could occur along Highway 1; would not create vibration impacts.	Noise impacts are projected to occur at 3 or 4 of the 10 sites evaluated; does not appear to create vibration impacts.	Noise impacts are projected to occur at 2 of the 10 sites evaluated; does not appear to create vibration impact.	Noise impacts are projected to occur at none (0) of the sites evaluated; does not appear to create vibration impact.	Noise impacts are projected to occur at 3 of the 10 sites evaluated; does not appear to create vibration impact.	Transit improvements would not create impact.
Cultural Resources (Potential Section 4(f) Effects)	Transit improvements would not create impact.	Potential impacts to cultural resources where the Hwy. 1 alignment crosses drainage's.	Potential impacts to cultural resources where the rail alignment crosses drainage's, hillside terraces, water-related woodlands. Potential impacts to historic properties in Aptos Village and downtown Santa Cruz.	Potential impacts to cultural resources where the rail alignment crosses drainage's, hillside terraces, water-related woodlands. Potential impacts to historic properties in Aptos Village and the Santa Cruz Boardwalk.	Heightened potential for impacts to cultural resources where the busway alignment crosses drainage's, hillside terraces, water-related woodlands. Potential impacts to historic property at the Santa Cruz Boardwalk.	Potential impacts to cultural resources where the rail alignment crosses drainage's, hillside terraces, water-related woodlands. Potential impacts to historic properties in Aptos Village and the Santa Cruz Boardwalk.	Limited potential for impacts to cultural resources in the vicinity of New Brighton Road and Cabrillo College Drive.
Visual Impacts	No change.	Vegetation loss on widened highway alignment. Views of highway corridor altered by potential new noise walls.	Pedestrian crossing on Hwy. 1; station at New Brighton in park; stations added to existing streetscapes; alignment crosses open grassland in southern-most end of the Pogonip Preserve.	Pedestrian crossing on Hwy. 1; station at New Brighton in park; stations added to existing streetscapes.	Stations added to existing streetscapes.	Station at New Brighton in park; stations added to existing streetscapes.	Pedestrian crossing on Hwy. 1.
Parks, Recreation and Open Space (Potential Section 4(f) Effects)	Transit improvements would not create impact.	No displacement of park or recreation areas along corridor. Loss of open space adjacent to locations of	Potential for direct impacts at New Brighton State Beach, Boardwalk, Harvey West Park, and Pogonip Preserve. Increased use of Seacliff Beach	Potential for direct impacts at New Brighton State Beach and Boardwalk. Increased use of Seacliff Beach parking lot as park-and-ride lot.	Potential for direct impacts at New Brighton State Beach entrance drive and Boardwalk.	Potential for direct impacts at New Brighton State Beach and Boardwalk. Increased use of Seacliff Beach parking lot as park-	Transit improvements would not create impact.

		Hwy. 1 widening.	parking lot as park-and-ride lot.			and-ride lot.	
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Table 5-1

COMPARISON OF BUILD ALTERNATIVES
(continued)

IMPACT CATEGORY	Alternative 2: TSM	Alternative 3: Widen Highway 1 for HOV	Alternative 4: Rail Transit - Watsonville Junction to UCSC via Harvey West	Alternative 5: Rail Transit - Watsonville Transit Center to Harvey West and Natural Bridges	Alternative 6: Busway	Alternative 7: Rail Transit - Downtown Watsonville to Harvey West	Alternative 8: Improved Bus Service
Public Safety	No change compared to Baseline condition.	Enforcement areas would be constructed at points along alignment.	Alignment would have 47 at-grade crossings.	Alignment would have 53 at-grade crossings.	Alignment would have 28 at-grade crossings.	Alignment would have 45 at-grade crossings.	No change compared to Baseline condition.
Air Quality	Decreases ROG, NOx and CO emissions; no change in PM.	Decreases CO emissions; increases ROG, NOx and PM emissions; exceeds MBUAPCD threshold for NOx.	Decreases ROG and CO emissions; increases NOx and PM emissions (mainly from diesel operations); exceeds MBUAPCD threshold for NOx.	Decreases ROG and CO emissions; increases NOx and PM emissions (mainly from diesel operations); exceeds MBUAPCD threshold for NOx.	Decreases CO emissions; increases ROG, NOx and PM emissions (commitment to alternative fueled vehicles will reduce).	Decreases ROG and CO emissions; increases NOx and PM emissions (mainly from diesel operations); exceeds MBUAPCD threshold for NOx.	Decreases CO emissions; increases ROG, NOx and PM emissions (commitment to alternative fueled vehicles will reduce); exceeds MBUAPCD threshold for NOx.
Natural Resources							
• Ground Water	No change compared to baseline condition.	No significant change compared to baseline condition.	No significant change compared to baseline condition.	No significant change compared to baseline condition.	No significant change compared to baseline condition.	No significant change compared to baseline condition.	No change compared to baseline condition.
• Surface Water	No change compared to baseline condition.	Sedimentation in drainage ravines crossed by Hwy 1. Loss of riparian vegetation.	Sedimentation in wetlands (temporary). Loss of riparian vegetation.	Wetlands impacts at Natural Bridges. Sedimentation in wetlands (temporary). Loss of riparian vegetation.	Comparatively greater impacts than rail alternatives in the UP/SP corridor. Wetlands impacts at Natural Bridges. Sedimentation in wetlands (temporary). Loss of riparian vegetation.	Sedimentation in wetlands (temporary). Loss of riparian vegetation.	Minimal impacts if construction occurs in urban areas.
• Floodplain Encroachment	Transit Improvements would not create impact.	Potential new encroachment at widened Highway 1 crossings of drainage ravines and at Soquel Creek.	Minor expansion of lateral encroachment through San Lorenzo and Pajaro River floodplains.	Minor expansion of lateral encroachment through San Lorenzo and Pajaro River floodplains.	Moderate expansion of lateral encroachment through San Lorenzo floodplain.	Minor expansion of lateral encroachment through San Lorenzo and Pajaro River floodplains.	Transit Improvements would not create impact.
• Seismic Hazards	No change compared to baseline	No significant change compared to baseline condition.	No significant change compared to baseline condition.	No significant change compared to baseline condition.	No significant change compared to baseline condition.	No significant change compared to baseline condition.	No change compared to baseline condition.

condition.						
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Table 5-1

COMPARISON OF BUILD ALTERNATIVES
(continued)

IMPACT CATEGORY	Alternative 2: TSM	Alternative 3: Widen Highway 1 for HOV	Alternative 4: Rail Transit - Watsonville Junction to UCSC via Harvey West	Alternative 5: Rail Transit - Watsonville Transit Center to Harvey West and Natural Bridges	Alternative 6: Busway	Alternative 7: Rail Transit - Downtown Watsonville to Harvey West	Alternative 8: Improved Bus Service
Biological Resources	No change compared to baseline condition.	Potential temporary impacts to wildlife movement corridors. Sedimentation (temp.), loss of riparian vegetation in creeks and gulches. Short-term impacts upon monarch butterfly.	Potential impact to wildlife movement corridors (e.g., Pogonip). Sedimentation in wetlands (temp.); loss of riparian vegetation. Species affected: burrowing owl, monarch butterfly, purple needlegrass, S. C. tarplant.	Potential impact to wildlife movement corridors. Wetlands impacts at Natural Bridges. Sedimentation in wetlands (temp.); loss of riparian vegetation. Species affected: burrowing owl, monarch butterfly, purple needlegrass, S. C. tarplant.	Potential impact to wildlife movement corridors. Wetlands impacts at Natural Bridges. Sedimentation in wetlands (temp.); loss of riparian vegetation. Species affected: burrowing owl, monarch butterfly, purple needlegrass, S. C. tarplant.	Potential impact to wildlife movement corridors. Sedimentation in wetlands (temp.); loss of riparian vegetation. Species affected: burrowing owl, monarch butterfly, purple needlegrass, S. C. tarplant.	Minimal impacts if construction occurs in urban areas.
Potential Contaminants	N/A	28 sites on or near alignment.	89 sites on or near alignment.	105 sites on or near alignment.	73 sites on or near alignment.	77 sites on or near alignment.	N/A
Energy	Would result in consumption of 33K less barrels of oil annually.	Would result in consumption of 22K more barrels of oil annually.	Would result in consumption of 56K more barrels of oil annually.	Would result in consumption of 43K more barrels of oil annually.	Would result in consumption of 32K less barrels of oil annually.	Would result in consumption of 43K more barrels of oil annually.	Would result in consumption of 32K less barrels of oil annually.

