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Kea'au-Pāhoa Road Improvements Project

Kea'au-Pāhoa Advisory Group Meeting #9
Monday, April 5, 2010 • 5:45 PM
Kea'au Elementary School

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Welcome

Jiro Sumada, Deputy Director, Hawai'i Department of Transportation

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Overview of Tonight's Meeting

- Review of Draft Environmental Assessment (DEA)
- Public Hearing on DEA and Public Comment Period
- Next Meeting

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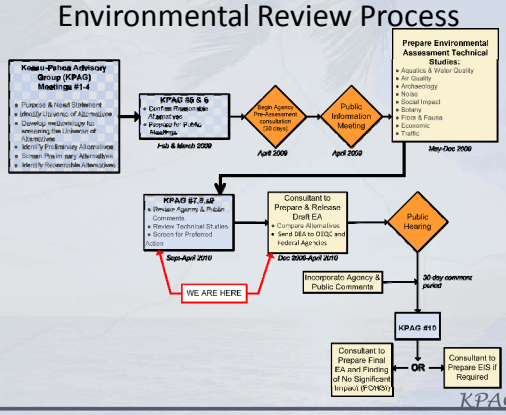
Environmental Review Process



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Review of Draft Environmental Assessment

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Draft Environmental Assessment (DEA) Submitted Pursuant to the National Environmental Policy Act, 42 USC 4332 (2) (c) and Chapter 343, Hawai'i Revised Statutes

SUMMARY:

This report documents the anticipated impacts of reconstruction of 9.5 miles of Kea'au-Pāhoa Road (State Route 130), from the terminus of the existing 4-lane Kea'au Bypass to its intersection with Pāhoa-Kapoho Road. **The project purpose is to improve highway safety, increase roadway capacity, and modernize the existing facility**, which is heavily congested during its peak hours of operation and has an accident rate much higher than the statewide average. Five alternatives (including No-Build and Transportation Systems Management) are evaluated; none are anticipated to have significant impacts based on criteria specified in Section 11-200-12b of the Hawai'i Administrative Rules. However, the **Federal Highway Administration will not issue a final determination until comments on the Draft Environmental Assessment are received and addressed.**

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Project Summary
Who? What? Where?

- Project name
- Location
- District
- Project Site Tax Map Keys
- Project Study Area
- Project Site Existing Use
- Project Site Existing Land Use Designations
- Proposed Action
- Anticipated Impacts
- HRS Chapter 343 Proposing Agency and Accepting Authority:
- Anticipated Determination
- Project Site Permits/Approvals
- EA Preparer

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Chapter 1: Purpose and Need
Identifies the community needs recognized by the KPAG:

- Population growth in Puna
- "Malāma Puna" – Pride in living in Puna
- Rural character and sense of place
- Within state-owned right-of-way as much as possible
- Improvements don't substitute for PMAR and should not preclude PMAR
- Signage and design for good driving habits.
- Enforcement: Part of the safety program.

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Purpose and Need for Project

KPAG identified the most important purposes of the Kea'au-Pāhoa Road Improvements:

- Improve Safety.
- Provide Mobility and Relieve Congestion.
- Improve Travel for Alternative Modes.
- Address Future Traffic Increases.
- Support Future Land Use Objectives.
- Enable Civil Defense, Emergency Travel, and Evacuations.

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Chapter 2: Alternatives

- **No-Build Alternative**
- **Traffic System Management (TSM) Alternative**
- **Build Alternatives 3, 4, & 5**
- **Alternatives NOT carried Forward**

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Alternatives: No-Build Alternative #1

- Planned/programmed improvements only:
  - Shoulder Conversion Project
  - "Quick Fix"
- Would not fulfill Purpose and Need
- Always included in EA document
- Baseline for comparison of other alternatives.

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Alternatives: TSM Alternative #2

- Transportation Systems Management (TSM)
- Improvements with low cost/little construction:
  - Signals,
  - Access management
  - Transit amenities, etc.
- TSM Elements could be implemented in Alts 3, 4, 5

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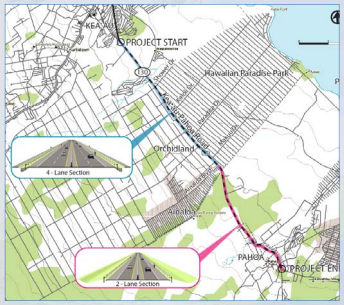
Alternatives: Build Alternative #3

- 4 Lanes Kea'au Bypass to Ainaloa Blvd.
- 2 Lanes Ainaloa Blvd. to Pāhoa-Kapoho Rd.



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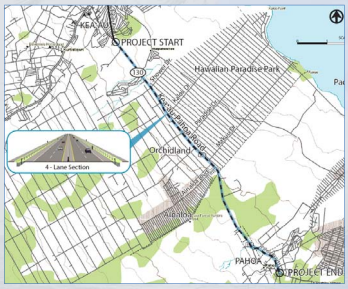
Alternatives: Build Alternative #4

- 4 Lanes Kea'au Bypass to Pāhoa-Kapoho Road



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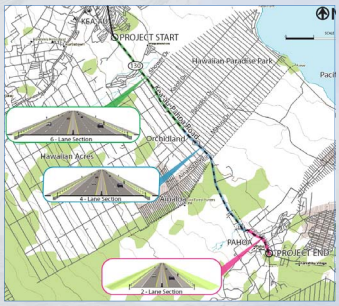
Build Alternative #5

- 6 Lanes Kea'au Bypass to Paradise Drive
- 4 Lanes Paradise Drive to Kahakai Blvd.
- 2 Lanes Kahakai Blvd. to Pāhoa-Kapoho Rd.



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Chapter 2: Alternatives

Chapter 2 Also Covers:

- Intersection Treatment Alternatives:
  - Signals
  - Roundabouts
  - Stop-sign Control
- Project Construction Costs
- Alternatives Considered by KPAG but not Carried Forward

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Chapter 3: Affected Environment

Describes Existing Conditions in the Corridor:

- Land Use and Zoning
- Traffic and Transportation
- Socioeconomics
- Climate and Air Quality
- Noise
- Right of Way Impacts
- Biological Resources
- Water Resources
- Geographic Setting and Natural Hazards
- Cultural Resources
- Parks and Recreation
- Agricultural Lands
- Visual Environment
- Utilities
- Hazardous Materials

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Chapter 4: Environmental Impacts and Mitigation Measures

Effects of Project on Environment, plus Mitigative Measures:

- Resources from Chapter 3, impacts, mitigation
- Direct Impacts, Indirect Impacts, and Cumulative Impacts
- Construction Impacts and Impacts After Construction
- Laws, Permits, Approvals

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Impacts Discussed Later Tonight

- Land Use and Zoning
- Traffic and Transportation
- Socioeconomic Environment
- Climate and Air Quality
- Noise
- Right of Way Impacts
- Biological Resources
- Water Resources
- Indirect/Cumulative Impacts
- Geographic Setting and Natural Hazards
- Cultural Resources
- Parks and Recreation
- Agricultural Lands
- Visual Environment
- Utilities
- Hazardous Materials
- Construction Impacts
- Laws/Permits/Approvals

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Chapter 5: Section 4(f) Evaluation

Prior to the use of any of the following land types, it must be determined that there are no reasonable and feasible alternatives which avoid "use" of:

- A publicly owned park
- A publicly owned recreation area
- A publicly owned wildlife or waterfowl refuge
- Land from an historic property that is on or eligible for inclusion in the National Register of Historic Places (NRHP or "National Register")
- Archaeological sites that will be preserved in place

Also, Section 4(f) makes certain that the project includes all possible planning to minimize harm to these resources.

See Section 4(f) of the Department of Transportation Act of 1966, 49 USC 303(c)

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Section 4(f) Evaluation

- No recreational facilities affected by the project
- Two historic resources:
  - 1930s-era concrete bridge
  - Sacred Heart Church Cemetery
- No "Use" expected:
  - Bridge demolished in earlier Shoulders Conversion Project
  - No encroachment closer to cemetery

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Chapter 6: Anticipated Determination

- 13 "Significance Criteria" prescribed by the Department of Health.
- Chapter 6 considers the "significance" of potential environmental effects.
- **No Significant Impacts are Anticipated under any alternative.**
- **A Finding of No Significant Impact (FONSI) is expected with the Final EA.**

State Department of Health's Administrative Rules Title 11, Chapter 200.

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Chapter 7: Public Involvement

Chapter 7 discusses:

- CSS Process
- KPAG Meetings and Issues Covered
- Public Information Meetings
- Project Website
- Pre-Assessment Consultation Letters/Responses

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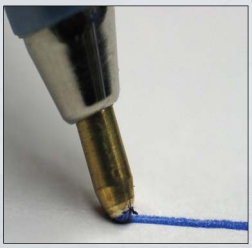
Chapters 8 and 9



Chapter 8: List of Preparers

- Documents those who have contributed to the Environmental Assessment

Chapter 9: References

- References cited in the Environmental Assessment

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Appendices

a) Roadway Design Plans
b) Pre-Consultation Comments Received
c) Traffic Study
d) Water Quality and Aquatics
e) Noise Study
f) Air Study
g) Social Impact Assessment
h) Faunal Study
i) Botanical Study
j) Archaeological Inventory Survey
k) Cultural Impact Assessment
l) Culvert Drainage Study
m) Pavement Drainage Report/BMP Assessment
n) Farmland Conservation Impact Rating Form

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Selected Impacts of Project Alternatives

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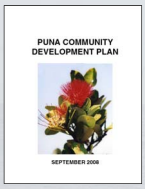
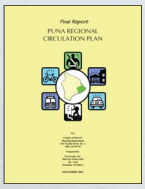
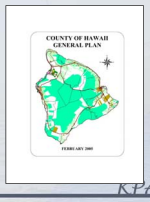
Land Use

Planning Studies

- Puna Community Development Plan (PCDP)
- Puna Regional Circulation Plan (PRCP)
- Other Plans: County General Plan, Statewide Transportation Plan, Long-Range Land Transportation Plan, etc.







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Land Use

Puna Community Development Plan

- No Build and TSM not consistent
- Alternatives 3, 4, and 5 generally consistent
  - Increased capacity
  - Improved access to Puna CDP Village/Neighborhood Centers
  - Supports Mass Transit
  - Supports Bike/Peds
  - Does Not Preclude PMAR
  - PCDP Calls for 45 mph speed between Kea'au and Ainaloa, which is not proposed in this project

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Land Use

Puna Regional Circulation Plan

- No Build and TSM not consistent
- Alternative 3 somewhat consistent:
  - Doesn't offer 4 lanes between Kea'au and Pāhoa (4 lanes end at Ainaloa Blvd.)
- Alternative 4 and 5 consistent:
  - 4 lanes from Kea'au to Pāhoa
- All Build Alternatives:
  - Support Mass Transit, Bikes, Peds
  - Do not preclude PMAR

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Land Use

Other Plans (County General, Statewide Plans, etc.)

- No Build and TSM generally not consistent
- Alternatives 3, 4, 5 generally consistent

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Traffic/Transportation

By 2038 Overall

- No-Build:
  - Increased congestion
  - Poor intersection operations
  - Poorer safety, etc.
  - Does not meet Purpose and Need
- TSM:
  - Marginal improvements at intersections
  - Somewhat addresses safety at intersections
  - Could include roundabouts at Kahakai, Ainaloa, elsewhere, and interim improvements
  - No new capacity
  - Transit improvements
  - Does not meet Purpose and Need

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Traffic/Transportation

By 2038 Overall

- Alternative 3:
  - Poor Level of Service (LOS) along roadway south of Ainaloa and north of Shower, acceptable elsewhere
  - Signals generally acceptable, some movements need improvement
  - Some lower volume stop sign intersections poor LOS for cross-traffic
  - Access changes could be implemented
  - 25% fewer crashes estimated
  - Transit, pedestrians, bicycles accommodated
  - Complements PMAR if implemented
  - Addresses Purpose and Need, though some congestion remains

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Traffic/Transportation

By 2038 Overall

- Alternative 4:
  - Satisfactory LOS except north of Shower Drive
  - Signals generally acceptable, some movements need improvement
  - Some lower volume stop sign intersections poor LOS for cross-traffic
  - Access changes could be implemented
  - 25% fewer crashes estimated
  - Transit, pedestrians, bicycles accommodated
  - Complements PMAR if implemented
  - Addresses Purpose and Need

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Traffic/Transportation

By 2038 Overall

- Alternative 5:
  - Excellent LOS along entire corridor
  - Signals generally acceptable
  - Some lower volume stop sign intersections poor LOS for cross-traffic
  - Access changes could be implemented
  - 25% fewer crashes estimated
  - Transit, pedestrians, bicycles accommodated
  - Complements PMAR if implemented
  - Addresses Purpose and Need

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Traffic/Transportation

Roundabouts

- Capacity and performance of roundabouts analyzed in EA
- HDOT policy: Only single-lane roundabouts
- Kahakai Blvd. only roundabout that could accommodate traffic adequately by 2038 in Alts. 3 and 5. Includes changes to Old Pāhoa.
- Other locations considered for interim Roundabouts, need future capacity addressed:
  - Kaloli
  - Orchidland
  - Paradise
  - Makuu
  - Ainaloa

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Other Transportation Topics Covered

- Access Management
- Reconfiguration of the Kahakai & Old Pāhoa road system
- Safety
- Bicycles and pedestrians
- Public Transit

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Noise

- Noise levels monitored at two locations
- "Worst-case Scenario" Modeled
- Currently: 117 properties out of 182 near corridor exceed HDOT/FHWA Criteria
- No-Build in 2038:
  - 150 out of 182 will exceed HDOT/FHWA Criteria
- Build Alternatives ("Worst-case") in 2038:
  - 166 out of 182 will exceed HDOT/FHWA Criteria
- Noise Walls not feasible because many driveways
- Construction noise will be mitigated with permit restrictions limiting hours and equipment upkeep

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Right of Way Impacts

- None of the project alternatives require relocation of residents or businesses
- Most property acquired: Narrow strips
- No Build: No direct acquisition of property
- TSM Alternative: 0.9 acres from 36 parcels
- Alternative 3: 18.1 acres from 287 parcels
- Alternative 4: 24.6 acres from 329 parcels
- Alternative 5: 39.7 acres from 362 parcels

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Right of Way Impacts

- Build Alternatives (3, 4, 5) could change access at an estimated 133 driveways to right-in-right-out
- Effects of access management measures not known as they are very conceptual in nature
- Process to compensate for property acquired or relocations per federal Uniform Relocation Assistance and Real Property Act of 1970

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Cultural Resources: Archaeology

- Archaeological Field Review and Background Research performed
- No Build has no effect on any resources
- Alts 2, 3, 4,5: No effect on known archaeological resources
- Archaeological monitors will be present during construction to protect unforeseen resources (iwi, other archaeological finds, unknown lava tubes, etc.)

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Cultural Resources: Historic Properties

- Historic research/field review
- Two historic resources:
  - 1930s-era concrete bridge
  - Sacred Heart Church Cemetery
- Finding of No Adverse Effect expected from SHPD:
  - Bridge demolished in earlier Shoulders Conversion Project: Data Collected
  - No encroachment closer to cemetery

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Cultural Resources: Cultural Impact Assessment

- Cultural Impact Assessment interviewed community regarding cultural practices:
  - 91 community members contacted
  - 33 people responded
  - 9 telephone comments
  - 11 in-depth talk story with kūpuna and kama'āina
- Only location of ongoing cultural practices: Maku'u Farmer's Market
  - Impacts will be minimized near this site
  - Improvements such as bus stop will enhance access
- Ancient trails (now overgrown) to be protected

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Visual Environment

- Roundabouts in Alts. 2, 3, 5: aesthetic benefits
- No-Build: No direct visual effects
- TSM: Alteration mostly limited: intersections
- Alt. 3: Widen to 4 lanes Ainaloa to Kea'au.
- Alt. 4: Widen to 4 lanes entire corridor
- Alt. 5: Widen to 6 lanes (Kea'au to Paradise) and 4 lanes (Paradise to Kahakai)
- No vistas blocked

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Visual Environment

- Mitigation of visual impacts:
  - Landscaping plan with emphasis native species
  - Roundabouts provide aesthetic opportunity
  - Streetlights shielded to avoid light pollution
  - CSS Process has worked with community

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Utilities

- No Build, no effect on utilities
- TSM alternative, minimal effect on utilities
- Alts. 3 to 5:
  - Relocate 4.2 to 4.6 miles electric/telecom both sides highway
  - Relocate 219 poles (Alt. 3); 245 poles (Alt. 4/5)
  - Relocate 40 fire hydrants
  - 6.8 miles of waterlines may end up under travel lanes, proposed to remain in place

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Utilities

- Relocations of utility poles estimated to cost:
  - Alt. 3: $6 million to $9 million
  - Alts. 4/5: $7 million to $10 million
- Undergrounding only HELCO lines: estimated $65 million to $80 million
- Utility relocation staged to minimize disruption or stoppages of service

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Indirect Impacts Definition

- Can be anticipated, but
  - –Are not directly on the actual roadway and/or
  - –Will happen much later in time

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Indirect Impacts

- No Build & TSM will have adverse indirect impact on community by increasing congestion & delay
- Build Alternatives could have indirect effects by encouraging growth, although much growth will occur anyway
- Build Alternatives could have indirect effects of traffic due to actions that reduce congestion increasing the volume

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Cumulative Impacts Definition

- Impacts may be minor from this project alone
- When taken with other past, present or future actions, impacts could become more significant

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Cumulative Impacts

- No Build would not generally contribute to cumulative impacts
- Some cumulative effects of Build Alternatives combined with other highway projects and other developments on:
  - Vegetation/wildlife,
  - Aesthetics,
  - Natural resources
  - Cultural resources,
  - Community cohesion
  - Past right of way takings
- Mitigation of impacts will address the cumulative impacts

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Public Hearing on DEA and Public Comment Period

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Public Hearing

FHWA and HDOT recommend public hearings.

- A public hearing during the Draft EA is not required for projects anticipated to have a Finding of No Significant Impact (FONSI) under NEPA or HRS Chapter 343.
- However, Public Hearing will be held for this project
- Draft EA available for a minimum of 15 days before hearing
- Public notice in newspaper.
- Testimony will be taken in written or spoken form
- A transcript of the hearing will be produced.

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Questions?

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Next Meeting…

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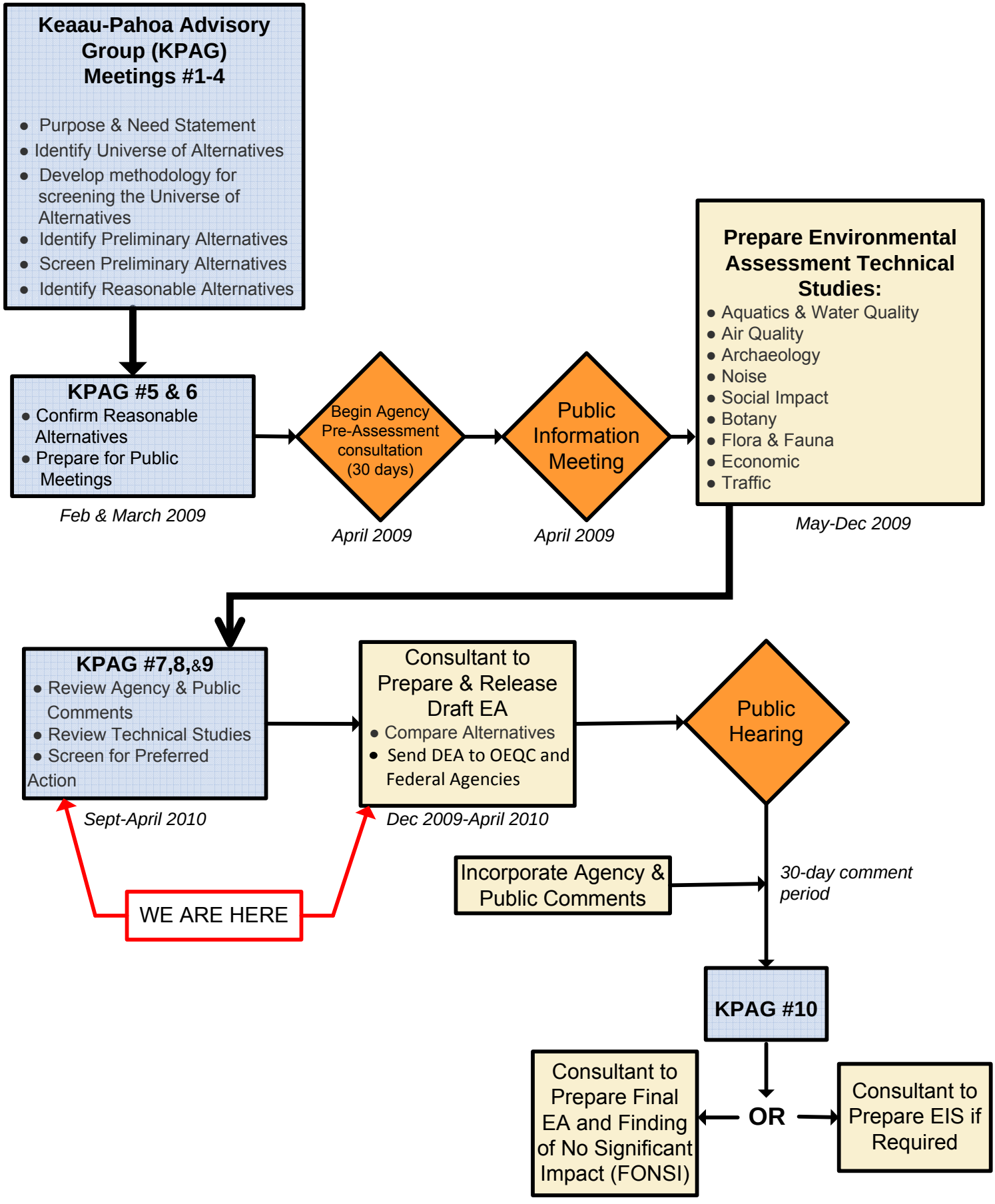
Keaau-Pahoa Advisory Group & The Environmental Review Process



Kea‘au-Pāhoa Road Improvements Project Summary

Project Name:	Kea‘au-Pāhoa Road Improvements
Location:	Between Kea‘au and Pāhoa Villages, Hawai‘i
District:	Puna
Project Site Tax Map Key:	(3)-1-5-various through (3)-1-6-various
Project Study Area:	Approximately 230 acres (a 200-foot wide corridor was considered over a distance of approximately 9.5 miles)
Project Site Existing Use:	Existing two-lane highway corridor. Areas of right-of-way acquisition that abut corridor include open space, residential, commercial, institutional and other uses.
Project Site Existing Land Use Designations:	Generally within state highway right-of-way. Areas that abut project, which may require acquisition for right-of-way purposes are classified as follows: State Land Use: All agricultural with the exception of one localized urban zone near Pāhoa Hawai‘i County General Plan’s Land Use Pattern Allocation Guide (LUPAG): Generally Rural, Extensive Agriculture, and Urban Expansion. Small pockets of Low Density Urban and Medium Density Urban Hawai‘i County Zoning: Primarily agricultural of varying density levels
Proposed Action:	The Hawai‘i Department of Transportation (HDOT) has proposed improvements along approximately 9.5 miles of Kea‘au-Pāhoa Road (State Route 130), from the terminus of the existing four-lane Kea‘au Bypass to its intersection with Pāhoa-Kapoho Road. Five alternatives are under consideration in this Draft EA, and a preferred alternative has not been selected at this time, but will be disclosed in the Final EA. Alternatives under consideration include: • A “No-Build” alternative (Alternative 1), which only includes currently programmed actions • A Transportation Systems Management (TSM) alternative (Alternative 2), which would make lower-cost improvements along the corridor, including signalizing intersections/roundabouts, access management, and transit improvements but not entail major construction • Alternative 3, which would incorporate the TSM improvements above, plus widen Kea‘au-Pāhoa Road to four lanes between Kea‘au Bypass and Ainaloa Boulevard, and retain the two lane cross-section between Ainaloa Boulevard and Pāhoa-Kapoho Road. This alternative includes a shoulder/bikeway, bus pull-outs, improved shoulders, and median treatments. • Alternative 4, which would incorporate the TSM improvements above, plus widen Kea‘au-Pāhoa Road to four lanes between Kea‘au Bypass and Pāhoa-Kapoho Road. This alternative includes a shoulder/bikeway, bus pull-outs, improved shoulders, and median treatments.

	• Alternative 5, which would incorporate the TSM improvements above, plus widen Kea'au-Pāhoa Road to six lanes between Kea'au Bypass and Paradise Drive, four lanes between Paradise Drive and Kahakai Boulevard, and retain the two lane cross-section between Kahakai Boulevard and Kapoho Road. This alternative includes a shoulder/bikeway, bus pull-outs, improved shoulders, and median treatments. The purpose of the project is to improve safety, provide mobility/relieve congestion, improve travel for alternative modes (transit, bicycles, pedestrians), address future traffic increases, support future land use objectives, and enable civil defense/emergency travel/evacuations.
Anticipated Impacts	A variety of impacts are anticipated under all five alternatives, but none are expected to be significant after mitigation. They include: • Right-of-Way takings • Relocations (only if optional access modifications convert three "T" intersections to four-way intersections) • Traffic Impacts (generally beneficial) and improved safety • Access changes • Future growth (directed by Puna Community Development Plan) • Air Quality • Noise • Removal of vegetation • Modification of waterways • Impacts on historic properties and cultural practices • Utility relocations • Construction-phase impacts on air, water, noise levels, sedimentation, vegetation, etc.
HRS Chapter 343 Proposing Agency and Accepting Authority:	State of Hawai'i Department of Transportation 869 Punchbowl Street Honolulu, HI Brennon Morioka, Director of Transportation (808) 587-2150
Anticipated Determination:	Finding of No Significant Impact (FONSI)
Project Site Permits/ Approvals Required :	• National Pollutant Discharge Elimination System (NPDES) • State of Hawai'i DBEDT - Coastal Zone Management Federal Consistency • State of Hawai'i DLNR/SHPD - Archaeological Inventory Survey, Archaeological Mitigation Plan, Cultural Impact Assessment approvals • State of Hawai'i DOH - Noise Permit/Variance • State of Hawai'i DOH - Underground Injection Control • County of Hawai'i Grubbing, Grading, Excavation and Stockpile Permits
EA Preparer	SSFM International 99 Aupuni Street, Suite 202 Hilo, HI 96720 (808) 933-2727 Contact: Douglas Zang, AICP

Readers' Guide to Kea'au-Pāhoa Road Improvements Draft Environmental Assessment			
Chapter	**Subchapter**	**Content**	**Description/Questions Answered**
n/a		Front Matter	• Signature sheet, summary matrix, table of contents
1	1.0	Purpose and Need for Action	• What is the purpose and need to justify the project? Why was an EA produced? • What was the project history, funding, and community participation by KPAG?
2	2.0	Alternatives	• What is the reasonable set of alternatives considered in the EA?
	2.1 to 2.5	Alternatives 1 through 5	• Detailed discussion of each of the five alternatives
	2.6	Intersection Treatment Alternatives	• How will traffic be handled at intersections: signals, stop-sign control or roundabouts?
	2.7	Project Cost Estimates	• What is the comparative range of costs to construct each of the five alternatives?
	2.8	Alternatives Considered But Not Analyzed	• What was the range of alternatives considered before arriving at the five discussed in the EA? Was a reasonable universe of alternatives considered?
3 and 4	3.0/4.0	Chapter 3: Affected Environment Chapter 4: Environmental Impacts and Mitigation Measures	• Chapter 3: What are conditions today in the natural, social, and physical environment? • Chapter 4: How will each of the five alternatives impact the natural, social, and physical environment and how will impacts be mitigated?
	3.1/4.1	Land Use	• Will project alternatives require land to be acquired or people to be relocated? Will access to properties be changed? • What kinds of land use have been planned/designated for the area and are the project alternatives consistent with those plans?
	3.2/4.2	Traffic and Transportation	• How does traffic perform now and in the future under all alternatives? • How does traffic perform at signals or roundabouts? • How will safety be addressed? • How will transit, bicycles, and pedestrians be accommodated?
	3.3/4.3	Socioeconomics and Community Impacts	• What is the demographic composition of the community? • Are there Environmental Justice Communities in the area? • What are the community character, economy, and facilities? • How does the community perceive this project? • Will the project alternatives have an adverse effect on the community or Environmental Justice populations?
	3.4/4.4	Air Quality	• Will the project alternatives create any adverse impacts on air quality, either from traffic or from construction equipment? Is mitigation needed to protect air quality?

Readers' Guide to Kea'au-Pāhoa Road Improvements Draft Environmental Assessment			
Chapter	**Subchapter**	**Content**	**Description/Questions Answered**
3 and 4 cont'd	3.5/4.5	Noise	• How much noise is present in the corridor today? • Will the project alternatives create any adverse impacts on noise, either from traffic or from construction equipment? Is mitigation needed to reduce noise?
	3.6/4.6	Biological Resources	• What kinds of flora, fauna, and aquatic biota are present in the corridor? • Will the project alternatives create adverse impacts on endangered species or critical habitat? Is mitigation needed to protect these resources?
	3.7./4.7	Water Resources	• Are surface waters, wetlands, and floodplains present in the corridor? • Will project alternatives create adverse impacts on water resources? • How will impacts on water resources be mitigated?
	3.8/4.8	Geographic Setting and Natural Hazards	• Does the study area's geology raise concerns? Are there lava tubes? • Are there threats from lava flows or earthquakes? • How do the project alternatives handle emergency response during natural disasters?
	3.9/4.9	Cultural Resources	• What is the historic context of the area? • Are there archaeological resources or historic sites that would be affected by the project alternatives? Is mitigation needed to protect these resources? • What cultural practices take place in the study area, and would they be affected by the project alternatives? Is mitigation needed to protect cultural practices?
	3.10/4.10	Parks and Recreational Resources	• What parks or recreational resources would be affected and is mitigation needed to protect them?
	3.11/4.11	Agricultural Lands	• Is there agricultural activity and important farmlands near the roadway? • How would project alternatives affect agriculture, and is mitigation needed to minimize impacts on farmland?
	3.12/4.12	Visual Environment	• What is the view to the corridor and the view from the corridor? • How would the project change the visual environment under each alternative? • Will landscaping or other measures be employed to mitigate impacts?
	3.13/4.13	Utilities	• What utilities are in the corridor, and how would the project alternatives affect them? • Will utilities need to be relocated? • Will there be stoppages in service, and how will adverse effects on customers be minimized?
	3.14/4.14	Hazardous Materials	• Are there any concerns about subsurface contamination?

Readers' Guide to Kea'au-Pāhoa Road Improvements Draft Environmental Assessment			
Chapter	**Subchapter**	**Content**	**Description/Questions Answered**
4	4.15	Construction Impacts	• Are there special construction-related temporary impacts on air, noise, water, vegetation, traffic, utilities, hazardous materials, etc.? How will they be mitigated?
	4.16	Laws, Permits, Orders and Approvals	• What Federal, State, and County Laws, Permits, and Approvals are needed?
	4.17	Coastal Zone Management Consistency	• How is the project consistent with the Hawai'i's Coastal Zone Management program?
	4.18	Indirect and Cumulative Impacts	• Will the project create impacts that are indirect? Indirect impacts are a result of the project, and can be anticipated, but would happen either: o Much later (after the highway construction is completed and it has been operating for awhile), for example future development o Far from the immediate project corridor, for example, if the project resulted in traffic congestion a mile away • Will the project contribute to cumulative impacts? This project could have a minor impact on a particular resource (for example, a rare plant), but taken together with other impacts on that plant in the past, present or future (like agriculture, residential development, etc.) have a major cumulative effect on that plant.
	4.19/4.20	Short Term Uses/Long Term Productivity and Irreversible/Irretrievable Commitments of Resources	• Do the short-term effects of construction justify the long term benefits? • What resources will be consumed as a result of this project, and is that reasonable?
5	5.0	Section 4(f) Evaluation	• Does the project result in a taking of parks, recreation areas, refuges, or historic properties regulated by Section 4(f) of the Department of Transportation Act of 1966? • Are there reasonable and feasible alternatives to affecting such properties? • Have measures been taken to minimize harm to such properties?
6	6.0	Anticipated Determination	• With mitigation, will the project alternatives be expected to have a "significant" impact on the environment? • Is a Finding of No Significant Impact (FONSI) anticipated?
7	7.0	Public Involvement	• How was the Context Sensitive Solutions Process handled? • What other measures were used to inform and reach out to the community? • What did KPAG do at their meetings? • What Public Information Meetings were held? • How do I access the project website? • What stakeholders (agencies, community institutions, etc.) were consulted?

Readers' Guide to Kea'au-Pāhoa Road Improvements Draft Environmental Assessment			
Chapter	**Subchapter**	**Content**	**Description/Questions Answered**
8	8.0	List of Preparers	• Who wrote or reviewed this EA?
9	9.0	References	• What are the references cited in this EA?
	Appendices		• What are the other materials to be consulted as background materials? ○ Design Plans ○ Pre-consultation Comments ○ Studies on traffic, water quality, noise, air, social impacts, fauna, botany, archaeology, cultural impacts, drainage ○ Farmland Conversion Impact Rating (Natural Resources Conservation Service)

Impacts and Mitigation Summary from Kea'au-Pāhoa Road Improvements EA

EA Sec.	Resource/ Issue	Impacts of:					Mitigation
		No-Build	**TSM Alt.**	**Alternative 3**	**Alternative 4**	**Alternative 5**	

4.1	**Land Use**	• Status quo maintained for future
		• **Not consistent** with Puna Community Development Plan (Puna CDP)
		• **Not consistent** with Puna Regional Circulation Plan (PRCP)
		• **Not consisten**t with County General Plan and other plans
			• **Not consistent** overall with these elements of Puna CDP:
			  • No increased capacity
			  • Limited improvement for bikes/pedestrians
			  • Will not improve emergency evacuations
			  • Doesn't meet PCDP plan to reduce speed to 45 mph between Kea'au & Ainaloa
			• **Consistent** with these elements of Puna CDP:
			  • Supports Mass Transit
			  • Improved access to Village Centers
			  • Does not preclude PMAR
			• **Not consistent** with PRCP:
			  • Doesn't provide four lanes from Kea'au to Pāhoa
			• **Consistent** with PRCP:
			  • Supports Mass Transit
			  • Limited improvement for bikes/pedestrians
			  • Increased connectivity between subdivisions
			  • Does not preclude PMAR
			• Not generally consistent with County General Plan and other plans
			• Will not change access to properties along highway and will not reduce accidents from turning movements
				• **Mostly consistent/supportive** towards Puna CDP goals:
				  • Increased capacity
				  • Improved access to Village Centers
				  • Supports Mass Transit
				  • Supports bikes/pedestrians
				  • Improved emergency evacuations
				  • Does not preclude PMAR
				• **Not consistent** with this Puna CDP goal:
				  • Doesn't reduce speed to 45 mph between Kea'au & Ainaloa
				• **Generally consistent with and supportive** of PRCP:
				  • Partially meets PRCP plan for four lanes from Kea'au to Pāhoa (four lanes end at Ainaloa)
				  • Supports Mass Transit
				  • Supports bikes/pedestrians
				  • Can provide increased connectivity between subdivisions
				  • Does not preclude PMAR
				• **Generally consistent with and supportive** of County General Plan and other plans
				• Will change access to properties along highway and will reduce accidents from turning movements
					• **Mostly consistent/supportive** towards Puna CDP goals:
					  • Increased capacity
					  • Improved access to Village Centers
					  • Supports Mass Transit
					  • Supports bikes/pedestrians
					  • Improved emergency evacuations
					  • Does not preclude PMAR
					• **Not consistent** with this Puna CDP goal:
					  • Doesn't reduce speed to 45 mph between Kea'au & Ainaloa
					• **Fully consistent with and supportive** of PRCP:
					  • Meets plan for at least four lanes from Kea'au to Pāhoa
					  • Supports Mass Transit
					  • Supports bikes/pedestrians
					  • Can provide increased connectivity between subdivisions
					  • Does not preclude PMAR
					• **Generally consistent with and supportive** of County General Plan and other plans
					• Will change access to properties along highway and will reduce accidents from turning movements
						• **Mostly consistent/supportive** towards Puna CDP goals:
						  • Increased capacity
						  • Improved access to Village Centers
						  • Supports Mass Transit
						  • Supports bikes/pedestrians
						  • Improved emergency evacuations
						  • Does not preclude PMAR
						• **Not consistent** with this Puna CDP goal:
						  • Doesn't reduce speed to 45 mph between Kea'au & Ainaloa
						• **Fully consistent with and supportive** of PRCP:
						  • Meets plan for at least four lanes from Kea'au to Pāhoa
						  • Supports Mass Transit
						  • Supports bikes/pedestrians
						  • Can provide increased connectivity between subdivisions
						  • Does not preclude PMAR
						• **Generally consistent with and supportive** of County General Plan and other plans
						• Will change access to properties along highway and will reduce accidents from turning movements
							• Will continue to involve community with CSS Process to ensure planning goals are considered

Impacts and Mitigation Summary from Kea'au-Pāhoa Road Improvements EA

EA Sec.	Resource/ Issue	Impacts of:					Mitigation
		No-Build	**TSM Alt.**	**Alternative 3**	**Alternative 4**	**Alternative 5**	
4.2	**Traffic and Transportation**	• Congestion and delay in corridor will continue to decline • Safety deficiencies will not be addressed • No changes in access • No improvements for bikes/peds • No improvements for transit • **Purpose and Need of Project will not be met**	• Level of Service (LOS) will still be poor along roadway because no capacity increases • Level of Service at intersections will be marginally improved, though capacity still limited and LOS still poor generally between Pōhaku Place and Ainaloa Boulevard • Some TSM Measures could be implemented in 2018 timeframe, but TSM would not have acceptable operations by 2038 • Safety deficiencies will be addressed somewhat at intersections but not between intersections • No new passing zones or capacity improvements will be provided. • Access changes can be considered • The only location a roundabout would function in 2038 is at Kahakai Boulevard and would modify Old Pāhoa Road access as well. Ainaloa Boulevard and Orchidland Drive could be considered for shorter-term implementation of a roundabout. • Localized improvement for transit at bus pullout sites • Improvements for pedestrians and bicyclists limited to crossings of road, no new bike/ped facilities along road itself • Does not preclude and can connect with Puna Makai Alternate Route (PMAR) • **Purpose and Need of Project will not be met**	• Poor Level of Service (LOS) along roadway south of Ainaloa Blvd and north of Shower Drive in 2038, generally acceptable elsewhere • Some signalized intersections generally have acceptable LOS though others have poor traffic movements (Shower Drive, Old Pāhoa Road) • The only location a roundabout would function in 2038 is at Kahakai Boulevard and would modify Old Pāhoa Road access as well. Ainaloa Boulevard could be considered for shorter-term implementation of a roundabout. • Some lower-volume stop-sign-controlled intersections will have poor LOS for cross-street traffic • Access changes could be considered to reduce problems at stop-sign-controlled points • 25% fewer crashes estimated • Transit benefits from new bus pullouts, reduced delay, more consistent schedules • Pedestrians and bicyclists benefit from walkways and/or improved shoulders • Does not preclude and can connect with PMAR • **Addresses Purpose and Need of Project though some congestion and delay will remain**	• Mostly satisfactory Level of Service (LOS) along roadway except for north of Shower Drive • Signalized intersections generally have acceptable LOS though some have poor individual traffic movements that may be improved with signal optimization • Some stop-sign-controlled intersections will have poor LOS for cross-street traffic • Access changes could be considered to reduce problems at stop-sign-controlled points • 25% fewer crashes estimated • Transit benefits from new bus pullouts, reduced delay, more consistent schedules • Pedestrians and bicyclists benefit from walkways and/or improved shoulders • Does not preclude and can connect with PMAR • **Addresses Purpose and Need of Project**	• Excellent Level of Service (LOS) along entire corridor • Signalized intersections generally have satisfactory LOS • Some stop-sign-controlled intersections will have poor LOS for cross-street traffic • Access changes could be considered to reduce problems at stop-sign-controlled points • 25% fewer crashes estimated • Transit benefits from new bus pullouts, reduced delay, more consistent schedules • Pedestrians and bicyclists benefit from walkways and/or improved shoulders • Does not preclude and can connect with PMAR • **Addresses Purpose and Need of Project**	• No significant impacts with mitigation • Implementation of additional travel lanes, turn lanes, and signals/roundabouts will enable corridor to handle future traffic volumes adequately and safely

Impacts and Mitigation Summary from Kea'au-Pāhoa Road Improvements EA

EA Sec.	Resource/ Issue	Impacts of:					Mitigation
		No-Build	TSM Alt.	Alternative 3	Alternative 4	Alternative 5	
4.3	Social/ Community Impacts	• No direct impact on community • Increased delay over time will compromise community mobility and quality of life • Increased difficulty for residents to access jobs, healthcare, education • Continues perceived underinvestment in Puna, particularly for minority/low-income communities • No way to tie subdivisions together	• Little direct impact on community resources other than near intersections • Modest investment in Puna • Modest reduction in delay and modest improvement in mobility and access • Potential for improving access between subdivisions • Benefits to minority/low-income communities, particularly transit-dependent and pedestrians/bikes • Modest improvement for emergency access	• Substantial investment in Puna • Impacts on neighborhood cohesion of wider four-lane facility between Kea'au and Ainaloa • Potential for improving access between subdivisions • Substantial reduction in delay and improved mobility and access • Benefits to minority/low-income communities, particularly transit-dependent and pedestrians/bikes • Substantial improvement for emergency access	• Substantial investment in Puna • Impacts on neighborhood cohesion of wider four-lane facility in entire corridor • Potential for improving access between subdivisions • Substantial reduction in delay and improved mobility and access • Benefits to minority/low-income communities, particularly transit-dependent and pedestrians/bikes • Substantial improvement for emergency access	• Substantial investment in Puna • Impacts on neighborhood cohesion of wider six-lane facility between Kea'au and Paradise Dr., and of wider four-lane facility between Paradise Dr. and Kahakai Blvd. • Potential for improving access between subdivisions • Substantial reduction in delay and improved mobility and access • Benefits to minority/low-income communities, particularly transit-dependent and pedestrians/bikes • Substantial improvement for emergency access	• No significant impacts with mitigation • Context Sensitive Solutions process seeks to reduce impacts on community from facility • Process has worked to make project process open and equitable for minority/low-income communities
4.4	Air Quality	• Increasing volumes and delay by 2038 will be offset by improved vehicle emission controls, lower intersection-level carbon monoxide (CO) emissions compared to 2006 • Compared to 2006, regional emissions in 2038 of CO will increase 17% with greater traffic; Regional Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOC) will respectively decrease 19% and 61% with emission controls. • No exceedances of state or federal air standards are anticipated • Mobile Source Air Toxics expected to increase over time, proportional to increase in traffic; this may be offset by future emission controls. • No Short-term construction air quality impacts	• No appreciable differences among alternatives in intersection-level emissions; all within state/federal standards in 2038 and lower than today's levels. • If pursued, roundabouts could reduce emissions even further than signals • While regional emission levels will increase/ decrease from 2006 to 2038 comparable to No-Build changes, no appreciable differences in regional emissions between alternatives in 2038. • While levels will increase from 2006 to 2038 comparable to No-Build changes, no appreciable difference in Mobile Source Air Toxics expected among alternatives in 2038. • Short-term construction phase air quality impacts will be mitigated	• No appreciable differences among alternatives in intersection-level emissions; all within state/federal standards in 2038 and lower than today's levels. • If pursued, roundabouts could reduce emissions even further than signals • While regional emission levels will increase/ decrease from 2006 to 2038 comparable to No-Build changes, no appreciable differences in regional emissions between alternatives in 2038. • While levels will increase from 2006 to 2038 comparable to No-Build changes, no appreciable difference in Mobile Source Air Toxics expected among alternatives in 2038. • Short-term construction phase air quality impacts will be mitigated	• No appreciable differences among alternatives in intersection-level emissions; all within state/federal standards in 2038 and lower than today's levels. • While regional emission levels will increase/ decrease from 2006 to 2038 comparable to No-Build changes, no appreciable differences in regional emissions between alternatives in 2038. • While levels will increase from 2006 to 2038 comparable to No-Build changes, no appreciable difference in Mobile Source Air Toxics expected among alternatives in 2038. • Short-term construction phase air quality impacts will be mitigated	• No appreciable differences among alternatives in intersection-level emissions; all within state/federal standards in 2038 and lower than today's levels. • While regional emission levels will increase/ decrease from 2006 to 2038 comparable to No-Build changes, no appreciable differences in regional emissions between alternatives in 2038. • While levels will increase from 2006 to 2038 comparable to No-Build changes, no appreciable difference in Mobile Source Air Toxics expected among alternatives in 2038. • Short-term construction phase air quality impacts will be mitigated	• No significant impacts with mitigation • No mitigation of long term effects warranted as no significant impacts anticipated • Temporary construction-phase air quality impacts will be mitigated to minimize fugitive dust and emissions from equipment

Impacts and Mitigation Summary from Kea'au-Pāhoa Road Improvements EA

EA Sec.	Resource/ Issue	Impacts of:					Mitigation
		No-Build	TSM Alt.	Alternative 3	Alternative 4	Alternative 5	
4.5	Noise	• No direct effect on noise in the corridor, though noise levels will increase from existing levels because of traffic increase in intervening time • 117 existing properties exceed HDOT/FHWA Criteria out of 182 in corridor • 150 future properties will exceed HDOT/FHWA Criteria in 2038 out of 182 in corridor	• Minimal direct effect on noise in the corridor compared to No-Build • Noise levels will increase from existing levels because of traffic increase in intervening time • Affected numbers of properties estimated similar to No-Build	• Noise levels will increase from existing levels because of traffic increase in intervening time • Imperceptible (less than 3 dBA) increase in noise compared to a No-Build scenario in 2038 at 23 properties • Between 150 and 166 future properties will exceed HDOT/FHWA Criteria in 2038 out of 182 in corridor compared to 150 in No-Build	• Noise levels will increase from existing levels because of traffic increase in intervening time • Imperceptible (less than 3 dBA) increase in noise compared to a No-Build scenario in 2038 at 23 properties • Up to 166 future properties will exceed HDOT/FHWA Criteria in 2038 out of 182 in corridor, an increase of 16 over No-Build	• Noise levels will increase from existing levels because of traffic increase in intervening time • Imperceptible (less than 3 dBA) increase in noise compared to a No-Build scenario in 2038 at 23 properties • 166 future properties will exceed HDOT/FHWA Criteria in 2038 out of 182 in corridor, an increase of 16 over No-Build	• No significant impacts with mitigation • Mitigation cannot include noise walls as driveway openings preclude walls • Construction Noise will be mitigated with a permit
4.6.1	Flora	• No direct effect on vegetation because no construction	• Minimal effect on vegetation because of limited area of construction	• Conversion of a narrow strip of highly disturbed vegetation to highway use • No adverse impact on sensitive botanical resources	• Conversion of a narrow strip of highly disturbed vegetation to highway use • No adverse impact on sensitive botanical resources	• Conversion of a narrow strip of highly disturbed vegetation to highway use • No adverse impact on sensitive botanical resources	• No significant impacts with mitigation • Landscaping of facility will seek to provide native, non-invasive species that could benefit biological resources in area.
4.6.2	Fauna	• No direct effect on wildlife because of limited habitat in study area and no construction	• Minimal effect on wildlife because of limited habitat in study area and limited area of construction	• Limited habitat in affected area • Limited potential for adverse impacts on wildlife. • Recommended mitigation ensures no significant impacts.	• Limited habitat in affected area • Limited potential for adverse impacts on wildlife. • Recommended mitigation ensures no significant impacts.	• Limited habitat in affected area • Limited potential for adverse impacts on wildlife. • Recommended mitigation ensures no significant impacts.	• No significant impacts with mitigation • Mitigation measures will include consultation in accordance with Section 7 of the Endangered Species Act to ensure that impacts on Hawaiian Hawk, Hawaiian Petrel, Newell's Shearwater, Hawaiian Hoary Bat are avoided.
4.6.3	Aquatic Biota	• No direct effect on aquatic species because limited habitat and no construction	• No direct effect on aquatic species because limited habitat in study area and no construction in areas near aquatic resources	• Limited potential for adverse impacts on aquatic resources because of limited habitat and resources	• Limited potential for adverse impacts on aquatic resources because of limited habitat and resources	• Limited potential for adverse impacts on aquatic resources because of limited habitat and resources	• No significant impacts with mitigation • Runoff treatment through swales, drywells, infiltration trenches, etc. • Best Management Practices (BMPs) and National Pollution Discharge Elimination System (NPDES) permit will minimize potential for impacts on aquatic resources in corridor
4.7.1	Surface/ Groundwater	• No direct effect on surface/groundwater because no construction	• Minimal direct effect on surface/groundwater because very limited construction	• Limited potential for adverse impacts on surface waters because of limited resources and proposed mitigation • Treatment of runoff will prevent impacts on groundwater. • No underground injection.	• Limited potential for adverse impacts on surface waters because of limited resources and proposed mitigation • Treatment of runoff will prevent impacts on groundwater. • No underground injection.	• Limited potential for adverse impacts on surface waters because of limited resources and proposed mitigation • Treatment of runoff will prevent impacts on groundwater. • No underground injection.	• No significant impacts with mitigation • Runoff treatment through swales, drywells, infiltration trenches, etc. • Best Management Practices (BMPs) and National Pollution Discharge Elimination System (NPDES) permit will mitigate impacts on surface water resources in corridor • Treatment of runoff will mitigate impacts on groundwater

Impacts and Mitigation Summary from Kea'au-Pāhoa Road Improvements EA

EA Sec.	Resource/ Issue	Impacts of:					Mitigation
		No-Build	TSM Alt.	Alternative 3	Alternative 4	Alternative 5	
4.7.2	**Wetlands**	• No direct effect on wetlands because no construction	• No direct effect on wetlands because no construction in area of wetlands	• Small area with some wetland characteristics near Waipahoehoe Bridge, but no jurisdictional wetland affected	• Small area with some wetland characteristics near Waipahoehoe Bridge, but no jurisdictional wetland affected	• Small area with some wetland characteristics near Waipahoehoe Bridge, but no jurisdictional wetland affected	• No significant impacts with mitigation • One area near Waipāhoehoe Bridge exhibits some characteristics of wetland but is not a defined jurisdictional wetland. Design will avoid and minimize impacts in this area. • Treatment of runoff will benefit area
4.7.3	**Floodplains & Hydrology**	• No direct effect on floodplains, as none are mapped in area • Existing areas of flooding problems will not be improved	• No direct effect on floodplains, as none are mapped in area • Drainage on project will ensure roadway is drained adequately and water is transported across highway adequately	• No direct effect on floodplains, as none are mapped in area • Drainage on project will ensure roadway is drained adequately and water is transported across highway adequately	• No direct effect on floodplains, as none are mapped in area • Drainage on project will ensure roadway is drained adequately and water is transported across highway adequately	• No direct effect on floodplains, as none are mapped in area • Drainage on project will ensure roadway is drained adequately and water is transported across highway adequately	• No significant impacts with mitigation • Drainage treatments will include such measures as vegetated swales, drywells, infiltration trenches, etc. to detain and dispose of runoff • Culverts and bridges will be improved as needed and designed to current standards • An existing abandoned concrete bridge will be removed as part of Shoulder Lane Conversion Project to improve drainage
4.8	**Natural Hazards**	• No direct effect on sensitive lava tubes • The existing facility would have limited capacity in the event of a regional evacuation	• Limited potential for affecting sensitive lava tubes • While intersections would be improved, the facility would have limited capacity in the event of a regional evacuation	• Unknown potential for affecting sensitive lava tubes • Improved capacity for evacuation.	• Unknown potential for affecting sensitive lava tubes • Improved capacity for evacuation.	• Unknown potential for affecting sensitive lava tubes • Improved capacity for evacuation.	• No significant impacts with mitigation • Archaeological monitoring during construction will help avoid or minimize effects on breaching lava tubes.
4.9.1	**Archaeological Resources**	• No direct effect on archaeological resources because no construction	• No effect on known archaeological resources • Limited potential for affecting unknown resources	• No effect on known archaeological resources • Limited potential for affecting unknown resources	• No effect on known archaeological resources • Limited potential for affecting unknown resources	• No effect on known archaeological resources • Limited potential for affecting unknown resources	• No significant impacts with mitigation • FHWA will consult with the State Historic Preservation Officer as necessary under Section 106 of the National Historic Preservation Act • Archaeological monitoring will help avoid or minimize effects on encountering unknown archaeological resources or the breaching of lava tubes.

Impacts and Mitigation Summary from Kea'au-Pāhoa Road Improvements EA

EA Sec.	Resource/ Issue	Impacts of:					Mitigation
		No-Build	TSM Alt.	Alternative 3	Alternative 4	Alternative 5	
4.9.2	**Historic Resources**	• No effect on historic resources	• No effect on historic resources	• No effect on historic resources because a historic bridge will have been demolished during the Shoulder Lane Conversion project before this project starts • No effect on historic cemetery adjacent to project	• No effect on historic resources because a historic bridge will have been demolished during the Shoulder Lane Conversion project before this project starts • No effect on historic cemetery adjacent to project	• No effect on historic resources because a historic bridge will have been demolished during the Shoulder Lane Conversion project before this project starts • No effect on historic cemetery adjacent to project	• No significant impacts with mitigation • FHWA will consult with the State Historic Preservation Officer as necessary under Section 106 of the National Historic Preservation Act • Mitigative data collection and coordination with State Historic Preservation Division on historic bridge has taken place on Shoulder Lane Conversion project • A barrier will protect cemetery from construction in adjacent highway right-of-way
4.9.3	**Cultural Practices**	• No effect on cultural practices	• Bus stop and bus pullout near Maku'u Farmer's Market will improve access to this cultural site.	• Bus stop and bus pullout near Maku'u Farmer's Market will improve access to this cultural site. • The highway itself will remain two lanes in this area	• Bus stop and bus pullout near Maku'u Farmer's Market will improve access to this cultural site. • Road widened to four lanes in this area, but impacts on the Maku'u Farmer's Market will be minimized as much as possible within the narrow strip of property between highway and parking areas	• Bus stop and bus pullout near Maku'u Farmer's Market will improve access to this cultural site. • Road widened to four lanes in this area, but impacts on the Maku'u Farmer's Market will be minimized as much as possible within the narrow strip of property between highway and parking areas	• No significant impacts with mitigation • Archaeological monitoring will help avoid or minimize effects on encountering unknown archaeological resources or the breaching of lava tubes. • If ancient trails are made visible because of vegetation clearing, they will be masked and buffered to protect them • Impacts on Maku'u Farmer's Market property will be minimized as much as possible
4.10	**Parks and Recreation**	• No effects on any parks or recreational facilities	• No effects on any parks or recreational facilities	• No effects on any parks or recreational facilities	• No effects on any parks or recreational facilities	• No effects on any parks or recreational facilities	• No mitigation needed because no effects
4.11	**Agricultural Lands**	• No effects on any agricultural lands	• Approximately 0.18 acres of agricultural property acquired in narrow strips next to highway	• Approximately 4.33 acres of agricultural property acquired, mostly vacant W.H. Shipman property • Approximately 0.04 acres of Prime Agricultural Land acquired • Highway widening near three Shipman access driveways	• Approximately 5.37 acres of agricultural property acquired, mostly vacant W.H. Shipman property • Approximately 0.02 acres of Prime Agricultural Land acquired • Highway widening near three Shipman access driveways	• Approximately 9.78 acres of agricultural property acquired, mostly vacant W.H. Shipman property • Approximately 0.08 acres of Prime Agricultural Land acquired • Highway widening near three Shipman access driveways	• No significant impacts with mitigation • Fair and just compensation for property acquired as per Uniform Relocation Assistance and Real Property Acquisition Act of 1970 • Coordination will take place with the Natural Resources Conservation Service and form AD-1006 completed • HDOT will work with agricultural property owners regarding accesses to ensure agricultural operations are not compromised

Impacts and Mitigation Summary from Kea'au-Pāhoa Road Improvements EA

EA Sec.	Resource/ Issue	Impacts of:					Mitigation
		No-Build	TSM Alt.	Alternative 3	Alternative 4	Alternative 5	
4.12	**Visual Environment**	• No direct visual effects	• Areas of alteration of visual environment limited to intersection areas. • Roundabouts, if implemented, could provide landscaping and aesthetic opportunities	• Visual effects where highway widened from two lanes to four lanes between the Kea'au Bypass and Ainaloa Boulevard. • Roundabouts, if implemented, could provide landscaping and aesthetic opportunities	• Visual effects where highway widened from two lanes to four lanes for entire corridor from Kea'au to Kapoho Road	• Visual effects where highway widened from two lanes to six lanes from the Kea'au Bypass to Paradise Drive and to four lanes from Paradise Drive to Kahakai Boulevard	• No significant impacts with mitigation • Context Sensitive Solutions (CSS) process involved the community in the planning for the project to ensure a facility that is appropriate for area's context • A landscaping plan in final design will emphasize native species wherever possible to minimize the spread of invasives, improve aesthetics, reduce maintenance costs and promoting native Hawaiian values of stewardship for the land. • Roundabouts, if implemented, could provide landscaping and aesthetic opportunities • Streetlights will be shielded to avoid light pollution as per County of Hawai'i code
4.13	**Utilities**	• No impacts on utilities	• Limited impacts on utilities, if at all, near intersections	• Relocation of 4.2 miles of electric/telecommunications utility line on mauka side highway • Relocation of 4.2 miles of electric/telecommunications utility line on makai side highway • Relocation of 219 poles on both sides highway • Potential relocation of not-as-yet-installed fiber optic line between Kea'au and Maku'u Farmer's Market • Three waterlines (approximately 6.8 miles total) may end up being situated under driving lanes after road is widened • 40 fire hydrants will need to be relocated, along with water meters	• Relocation of 4.6 miles of electric/telecommunications utility line on mauka side highway • Relocation of 4.2 miles of electric/telecommunications utility line on makai side highway • Relocation of 245 poles on both sides highway • Potential relocation of not-as-yet-installed fiber optic line between Kea'au and Maku'u Farmer's Market • Three waterlines (approximately 6.8 miles total) may end up being situated under driving lanes after road is widened • 40 fire hydrants will need to be relocated, along with water meters	• Relocation of 4.6 miles of electric/telecommunications utility line on mauka side highway • Relocation of 4.2 miles of electric/telecommunications utility line on makai side highway • Relocation of 245 poles on both sides highway • Potential relocation of not-as-yet-installed fiber optic line between Kea'au and Maku'u Farmer's Market • Three waterlines (approximately 6.8 miles total) may end up being situated under driving lanes after road is widened • 40 fire hydrants will need to be relocated, along with water meters	• No significant impacts with mitigation • HDOT will coordinate with utilities and customers to minimize and mitigate disruption
4.14	**Hazardous Materials**	• No impacts from hazardous materials	• Very limited potential for impacts from hazardous materials	• Very limited potential for impacts from hazardous materials	• Very limited potential for impacts from hazardous materials	• Very limited potential for impacts from hazardous materials	• No significant impacts with mitigation • If hazardous materials are discovered during construction, standard procedures will be followed to prevent exposure to workers and to alert authorities for emergency response as needed.

Impacts and Mitigation Summary from Keaʻau-Pāhoa Road Improvements EA

EA Sec.	Resource/ Issue	Impacts of:					Mitigation
		No-Build	TSM Alt.	Alternative 3	Alternative 4	Alternative 5	
4.15	**Construction Impacts**	• No construction impacts	• Very minor localized construction impacts	• Construction impacts on air, noise, surface waters, vegetation, erosion, traffic, property access, utilities, cultural resources, etc.	• Construction impacts on air, noise, surface waters, vegetation, erosion, traffic, property access, utilities, cultural resources, etc.	• Construction impacts on air, noise, surface waters, vegetation, erosion, traffic, property access, utilities, cultural resources, etc.	• No significant impacts with mitigation • Construction program will limit night work, provide adequate for nearby/impacted properties ,and entail outreach with public
4.17	**Coastal Zone Management Consistency**	• No action in coastal zone.	• Generally consistent with Coastal Zone Management program goals.	• Generally consistent with Coastal Zone Management program goals.	• Generally consistent with Coastal Zone Management program goals.	• Generally consistent with Coastal Zone Management program goals.	• No significant impacts with mitigation
4.1	**Right of Way, Relocations, and Access Changes**	• No direct acquisition of property or relocations of residents or businesses	• 0.9 acres acquired in 36 parcels. • No relocations of residents or businesses • Minimal effect on driveways in corridor	• 18.1 acres acquired in 287 parcels. • No relocations of residents or businesses • Up to 133 driveways have access limited to right-in-right-out	• 24.6 acres acquired in 329 parcels. • No relocations of residents or businesses • Up to 133 driveways have access limited to right-in-right-out	• 39.7 acres acquired in 362 parcels. • No relocations of residents or businesses • Up to 133 driveways have access limited to right-in-right-out	• No significant impacts with mitigation • Fair and just compensation for property acquired or relocations of residents/businesses as per Uniform Relocation Assistance and Real Property Acquisition Act of 1970.
4.18	**Indirect/ Cumulative Impacts**	• Little direct contribution to indirect or cumulative effects, though adverse effects of increasing congestion and delay on the community may have some contribution.	• Minimal direct contribution to indirect or cumulative effects though adverse effects of increasing congestion and delay on the community may have some contribution	• Indirect effects from induced growth, though growth is occurring independently of project. • Indirect effects from induced traffic from congestion reduction • Cumulative effects on vegetation, wildlife, aesthetics, natural/cultural resources, community cohesion, past right-of-way impacts	• Indirect effects from induced growth, though growth is occurring independently of project. • Indirect effects from induced traffic from congestion reduction • Cumulative effects on vegetation, wildlife, aesthetics, natural/cultural resources, community cohesion, past right-of-way impacts	• Indirect effects from induced growth, though growth is occurring independently of project. • Indirect effects from induced traffic from congestion reduction • Cumulative effects on vegetation, wildlife, aesthetics, natural/cultural resources, community cohesion, past right-of-way impacts	• No significant impacts with mitigation. Mitigation for these varied effects discussed elsewhere in this table