

Mitigation Imp

ation and Monitoring Plan for the NASA Ames Development Plan Envi

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#	Mitigation Description	Responsible Party	Cost	When	Monitoring Required (Y/N)	Monitor*	Monitoring Method	Frequency	Report	Frequency
CIR - 1	As part of the NADP, NASA and its partners shall implement an aggressive Transportation Demand Management (TDM) program designed to reduce trip generation by a total of at least 22 percent. TDM measures are phased as described in Appendix B of the FPEIS. Each phase specifies an Average Vehicle Ridership (AVR) goal. NASA will not proceed to the next phase of development until the AVR goal of the previous phase is achieved. In addition, on-site housing will be constructed to reduce vehicle trip generation to external streets and freeways by internalizing trips to onsite employment centers and amenities.	TMA	Per TDM Plan	Per TDM Plan	Y	QE	Review of Annual TDM report	Annual	Y	Annual TDM report cc: City of MV
CIR - 3	<p>Intersection of Moffett Boulevard/Clark Memorial Drive/R. T. Jones Road. Development under the NADP would include the following improvements to achieve acceptable operations and minimize queuing at this intersection:</p> <ul style="list-style-type: none"> Installation of a traffic signal. Provision of the following lane configurations: <ul style="list-style-type: none"> Northbound (from Space Camp/base housing): one left - turn lane, one shared lane through/right turn lane. Southbound (from Bay View): one left-turn lane, one through lane, and one "free" right-turn lane (i.e., the right-turn movement would not be controlled by the signal and would require a third westbound receiving lane on Moffett Boulevard). Westbound (from Clark Memorial Drive): one left-turn lane, two through lanes, and one right-turn lane. Eastbound (from Highway 101): two left-turn lanes, one through lane, and one shared through/right turn lane. <p>This measure would provide LOS C or D operations or better during all periods under all alternatives.</p>	TA sq ft pro rata	\$1,750,000	When intersection gets to <LOS D	Y	DRB	Review of annual traffic survey	Annual	N	
CIR - 6	Development under the NADP would modify the Ellis Street underpass to better accommodate bicyclists. Two options are proposed. One is to modify the overpass so that the lanes can be widened. This proposal is subject to Caltrans review. If determined to be infeasible, the other option is use a reversible lane depending on the commute direction. Therefore, two lanes of traffic and a bicycle lane can be accommodated in the main direction of travel and a single lane of traffic and a bicycle lane will accommodate the "reverse commute."	TMA pro rata	\$1.5 to \$5M	At Phase 2 of TDM	Y	DRB	Review of Annual TDM report	Annual	N	
CIR - 7	Improvements to facilities within Caltrans right-of-way associated with the development proposed under the NADP shall adhere to the conditions and requirements of Caltrans statewide NPDES Permit CAS #000003, Order #99-06-DWQ and NPDES General Permit CAS #000002, Order #99-08-DWQ, and shall incorporate Treatment Best Management Practices described in Section 4.4 of the Storm Water Management Plan which implements the statewide NPDES permit, as such requirements specifically apply to the proposed improvements. In general, this would include the preparation and implementation of a Storm Water Pollution Prevention Plan and Best Management Practices for construction and post-construction conditions for each such project.	Partners	ISP	Implementation of CIR-6	Y	QE	Inspections	As Required, at least annually during NASA construction	Y	Annual Storm Water Monitoring Report during NASA construction cc: Caltrans
AQ - 1	The NADP includes a proposed TDM plan to reduce automobile trips from existing and planned uses. Even with the substantial reductions in vehicle trips projected in the TDM plan, emissions would remain above BAAQMD significance thresholds. This impact is significant and unavoidable.				Y	QE	Review of Annual TDM report	Annual	Y	Annual TDM report cc: City of MV

*Cost of monitoring is included in ISP

**TDM Phase 1: 0-2,999 TDM Phase 2: 3,000-5,999 TDM Phase 3: 6,000-7,999 TDM Phase 4: 8,000-project buildout

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AQ - 2	NASA and its partners would schedule construction to ensure that annual emissions of ozone precursors associated with project construction and operation do not exceed a cumulative total of 100 tons per year. This would apply over all years of project construction and operation or until an applicable State Implementation Plan that includes the project emissions is approved by EPA. Implementation of this mitigation is mandatory to comply with the Federal Clean Air Act.	NASA Development Office	ISP	Prior to construction	Y	OE	Review construction permits prior to approval against years total	Annual	Y	Annual cc: City of MV
AQ - 3	Develop Master Construction Schedule, updated annually Prior to the issue of occupancy permits, operators of laboratories and disaster training facilities would be required to consult with the BAAQMD regarding possible permit requirements and emissions reduction equipment and to comply with BAAQMD's requirements.	Partner	Standard Practice	Prior to construction		OE	Permit review	As required	N	
AQ - 4	Long-term residential uses would be avoided at areas located over high concentration zones of the Regional Plume in accordance with the Human Health Risk Assessment (HHRA) and EIMP.	NASA Development Office	ISP	During Master Planning	Y	DRB	Permit review	As required	N	
AQ - 5	NASA would review all planned uses in light of the findings of the HHRA to ensure that planned uses would not create unacceptable public health risks. Proposed uses would be moved if unacceptable risks which could not be mitigated to an acceptable level were found.	NASA Environmental	ISP	During Master Planning	Y	OE	Permit review	As required	Y	As needed cc: City of MV
AQ - 6a	Measures to control dust generation would reduce this impact associated with PM ₁₀ to a level of less-than-significant. The following measures, including all control measures recommended by the BAAQMD, would be incorporated into construction contract specifications and enforced by NASA. These measures include the following provisions: <ul style="list-style-type: none"> Use reclaimed water on all active construction areas at least twice daily and more often during windy periods. Watering is the single-most effective measure to control dust emissions from construction sites. Proper watering could reduce dust emissions by over 75 percent. Cover all hauling trucks or maintain at least 0.6 meters (2 feet) of freeboard. Dust-proof chutes would be used as appropriate to load debris onto trucks during any demolition. Pave, apply reclaimed water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads. Hydro seed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas that are inactive for 10 days or more). Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles. Limit traffic speeds on any unpaved roads to 25 kilometers per hour (15 mph). Install sandbags or other erosion control measures to prevent silt runoff to public roadways. Replant vegetation in disturbed areas as quickly as possible. 	Partner/ Construction contractor	Varies	During construction	Y	OE	Site visits	Periodic	N	
		Partner/ Construction contractor		During construction						
		Partner/ Construction contractor	\$0	During construction						
		Partner/ Construction contractor	\$0	During construction						
		Partner/ Construction contractor	\$0	During construction						
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AQ - 6b	<ul style="list-style-type: none"> Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. If necessary, install windbreaks, or plant trees/vegetative windbreaks at the windward side) of construction areas. Suspend excavation and grading activity when winds (instantaneous gusts) exceed 40 kilometers per hour (25 mph) and visible dust emissions cannot be prevented from leaving the construction site(s). Limit areas subject to disturbance during excavation, grading and other construction activity at any one time. Prior to disturbance (or removal) of materials suspected to contain asbestos, lead or other toxic air contaminants, contact the BAAQMD. NASA would designate an <i>Environmental Coordinator</i> responsible for ensuring that mitigation measures to reduce air quality impacts from construction are properly implemented. This person would also be responsible for notifying adjacent land uses of construction activities and schedule. 	<ul style="list-style-type: none"> Partner/ Construction Partner/ Construction contractor Partner/ Construction contractor Partner/ Construction contractor Partner/ Construction contractor NASA Environmental/ Partner NASA Environmental/ Development Offices 	<ul style="list-style-type: none"> ? \$200,000 Could add 5-15% to grading/site work costs \$0 ISP ISP 	<ul style="list-style-type: none"> During construction During construction During construction During construction Prior to construction During construction 	Y	QE	Site visits	Periodic	N	
	Measures to reduce emissions of nitrogen oxides and particulate matter from diesel fuel combustion during construction should be evaluated and implemented where reasonable and feasible. The following measures would reduce the impacts from construction fuel combustion:	Partner/ Construction Contractor	\$0	During construction						
	<ul style="list-style-type: none"> Properly maintain construction equipment. This measure would reduce emissions of ROG, NOX and PM10 by about 5 percent. Evaluate the use of available alternative diesel fuels and where reasonable and feasible, use alternative diesel fuels. The CARB has verified reductions of NOX by almost 15 percent, and particulate matter by almost 63 percent, from use of alternative diesel fuels. However, the use of these fuels may not be appropriate for all diesel equipment. 	<ul style="list-style-type: none"> Partner/ Construction Contractor Partner/ Construction Contractor 	<ul style="list-style-type: none"> Unknown 	<ul style="list-style-type: none"> During construction 						
	<ul style="list-style-type: none"> Reduce construction traffic trips through TDM policies and implementation measures. Reduce unnecessary idling of construction equipment and avoid staging equipment near or upwind from sensitive receptors such as onsite residences or daycare uses. Where possible, use newer, cleaner burning diesel-fueled construction equipment. The <i>Environmental Coordinator</i> would prohibit the use of equipment that visibly produces substantially higher emissions than other typical equipment of similar size. 	<ul style="list-style-type: none"> Partner/ Construction Contractor 	<ul style="list-style-type: none"> Minimal 	<ul style="list-style-type: none"> During construction 						
AQ - 7a	NASA would install air pollution devices, for example, particulate traps and oxidation catalysts, on construction equipment to the greatest extent that is technically feasible.	Partners/ Construction Contractors	Minimal	Design/ construction	Y	QE/DRB/ CPB	Permit review	As required	N	
AQ - 7b	NASA and its partners would develop and implement a Construction Emissions Mitigation Plan (CEMP) to ensure that the project would comply with the Federal Clean Air Act and further reduce emissions. The plan would include measures and procedures, sufficiently defined to ensure a reduction of nitrogen oxides, PM ₁₀ , and diesel particulate matter.	NASA would prepare the CEMP to be implemented by Partners/ Construction Contractors	\$15,000-25,000	Design/ construction	Y	QE/DRB/ CPB	Permit review	As required	N	

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<p>The CEMP would be developed in consultation with EPA and BAAQMD. The CEMP would be evaluated by NASA and its partners on an annual basis to schedule construction ensuring that emissions of ozone precursors associated with project construction and operation would not exceed 91 tonnes (100 tons) per year and update measures to include new rules or regulations. NASA and its partners would consult with the BAAQMD on an annual basis during project construction to determine if additional air quality mitigations to reduce the project's air quality impact are warranted, and to take such additional air quality mitigation as is appropriate and reasonable, and in an expeditious manner.</p> <p>A CEMP coordinator, who would also act as a "Disturbance Coordinator" would be responsible for ensuring that measures included in the CEMP are implemented. This would be done through field inspections, records review, and investigations of complaints.</p> <p>At a minimum, the CEMP would include the following measures to reduce emissions from construction activities:</p> <ul style="list-style-type: none"> Require that all equipment is properly maintained at all times. All construction equipment working on site would be required to include maintenance records indicating that all equipment is tuned to engine manufacturer's specifications in accordance with the time frame recommended by the manufacturer. All construction equipment would be prohibited from idling more than 5 minutes. Tampering with equipment to increase horsepower would be strictly prohibited. Include particulate traps, oxidation catalysts and other suitable control devices on all construction equipment used at the site Diesel fuel having a sulfur content of 15 ppm or less, or other suitable alternative diesel fuel, would be used unless such fuel cannot be reasonably procured in the market area. The CEMP would also ensure that construction-related trips are minimized through appropriate policies and implementation measures. The CEMP would address the feasibility on a biannual basis of requiring the use of reformulated or alternative diesel fuels. The CEMP Coordinator (or Environmental Coordinator) would prohibit the use of equipment that visibly produces substantially higher emissions than other typical equipment of similar size. The staging of three or more pieces of construction equipment near or just upwind from sensitive receptors such as residences or daycare uses would be prohibited. <p>The CEMP would address the feasibility of requiring or encouraging the use of "Cleaner" (Lower Emissions) construction equipment on an annual basis. For larger construction projects (i.e., projects greater than 9,290 square meters (100,000 square feet)), a percentage of the equipment would be required to be 1996 or newer. This would be determined as follows:</p> <ul style="list-style-type: none"> If equipment is leased by the contractor, then the percentage of 1996 or newer equipment would be maximized so that the total cost of leasing equipment would not exceed 110 percent of the average available cost for leased equipment. If equipment is owned by the Contractor, then the CEMP shall identify the minimum percentage of total horsepower for 1996 or newer equipment that should be used in construction. For the first year of construction, it shall be considered possible that 1996 or newer equipment shall makeup a minimum of 75 percent of the total horsepower, unless NASA and its partners can show the BAAQMD that it is not reasonable. 	<p>NASA would consult with BAAQMD and amend CEMP, which would be implemented by Partners/ Construction Contractors</p>	<p>ISP</p>	<p>Ongoing</p>	<p>Y</p>	<p>OE/DRB/ CPB</p>	<p>Work with BAAQMD</p>	<p>Annually</p>	<p>N</p>	
<p>AQ - 7c</p> <p>The CEMP would address the feasibility of requiring or encouraging the use of "Cleaner" (Lower Emissions) construction equipment on an annual basis. For larger construction projects (i.e., projects greater than 9,290 square meters (100,000 square feet)), a percentage of the equipment would be required to be 1996 or newer. This would be determined as follows:</p> <ul style="list-style-type: none"> If equipment is leased by the contractor, then the percentage of 1996 or newer equipment would be maximized so that the total cost of leasing equipment would not exceed 110 percent of the average available cost for leased equipment. If equipment is owned by the Contractor, then the CEMP shall identify the minimum percentage of total horsepower for 1996 or newer equipment that should be used in construction. For the first year of construction, it shall be considered possible that 1996 or newer equipment shall makeup a minimum of 75 percent of the total horsepower, unless NASA and its partners can show the BAAQMD that it is not reasonable. 	<p>Partners/ construction contractors</p>	<p><10% increase in equipment cost in construction project.</p>	<p>Ongoing during construction</p>	<p>Y</p>	<p>OE/DRB/ CPB</p>	<p>Permit review</p>	<p>As required</p>	<p>N</p>	

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INFRA-1	NASA would cooperate with the City of Sunnyvale in determining the cumulative impact of existing and proposed development on the sanitary sewer conveyance system between Ames Research Center and the SWPCP. NASA and its partners would contribute their fair share toward construction of conveyance pipes and supporting infrastructure which are determined to be necessary to mitigate the cumulative impact of existing and proposed development. NASA's fair share will be based on its pro rata share of the total flow of all existing and proposed development contributing to either the existing sewer conveyance system between ARC and SWPCP or the new system designed to replace or augment the existing system.	TA pro rata	\$600,000	When flow projected to exceed capacity	Y	DRB	Review of sewer billings	Annual	N	
INFRA-2	NASA will cooperate with the City of Mountain View in determining the cumulative impact of existing and proposed development on the sanitary sewer conveyance system between Ames Research Center and the PARWQCP. New conveyance piping would be installed between the area served by the existing lift station at the Mountain View Golf Course and the Palo Alto Regional Water Quality Control Plant (PARWQCP), with sufficient capacity to accommodate the total expected flow. This would require the installation of roughly 5486 meters (18000 lineal feet) of pipe. NASA will contribute its fair share toward construction of the conveyance pipes and supporting infrastructure that are determined to be regional to mitigate the cumulative impact of existing and proposed development. NASA's fair share will be based on its pro rata share of the total flow of all existing and proposed development contributing to the new sewer conveyance system between ARC and PARWQCP.	TA pro rata	\$2,500,000	When flow is at 90% of its capacity, as coordinated with City of Mountain View.	Y	DRB	Work with Mountain View Public Works	As Required	N	
INFRA-3	The 1993 agreement between the PARWQCP and Ames Research Center would be amended to address the capacity issues. NASA would also enter into an agreement with the city of MV that stipulates the amount of flow NASA would be permitted in the	NASA Environmental/Development	ISP	Prior to Bay View construction	N	DRB	Work with PARWQCP & City of MV	As required	N	
SERV-1	The housing developers would pay Developer Impact Fees to cover the costs of constructing additional classrooms.	Partner	\$1,702,910	Prior to housing construction	Y	Development Office	Permit Review	As required	N	
HAZ-1	NASA's development partners would work with the Remediation Project Manager within the Office of Environmental Services during site planning and would implement the guidelines and recommendations in the Environmental Issues Management Plan (EIMP) to ensure that none of the proposed construction, demolition, and infrastructure improvement projects would expose personnel to unacceptable levels of contaminated soil or groundwater. Where the Remediation Project Manager determined that there would be a possible risk of exposure to people or clean soil or groundwater, the proposed design would be altered to prevent such exposure if feasible. If it were not feasible to avoid exposure, protective measures would be undertaken to minimize the risk of exposure as described in the EIMP.	Partner/Construction Contractor	Varies	During design and construction	Y	QE	Permit review	As required (See EIMP)	N	
	<ul style="list-style-type: none"> - Relocate treatment system components that would be affected by development - Excavate contaminated soil that is in the development location - Ensure that construction contractors have 40 hours of HAZWOPER training if excavating contaminated soil or groundwater, or have 24 hours of HAZWOPER for other site work - Prepare Health and Safety Plan to prevent undue exposure to site contaminants - Conduct industrial hygiene monitoring, and provide personal protective equipment, and other measures as required by the Health and Safety Plan - Allow time in schedule for sampling, staging, and stockpiling contaminated soil, and transporting to onsite treatment location 									

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HAZ-2	<ul style="list-style-type: none"> - Install lined underground utility pipes and/or collars around underground utilities to prevent migration of contaminated groundwater - Construct vapor barriers or subslab ventilation under new buildings to prevent vapor intrusion from contaminated groundwater - Retrofit existing buildings to prevent vapor intrusion from contaminated groundwater - Allow time in schedule for sampling groundwater, and containing and transporting contaminated groundwater to onsite treatment system 	Partner	Included in NRP Due Diligence	Design/ construction						
		Partner	See EIMP Worksheets	Design/ construction						
		Partner	See EIMP Worksheets	Design/ construction						
HAZ-2	NASA would locate childcare facilities at least 402 meters (1,320 feet) from the industrial area of Mountain View, which would limit the area in which industries handling hazardous materials would be prohibited.	NASA Development Office		Planning/design/ construction	Y	DRB/CPB	Permit Review	As required	N	
GEO - 1	All rehabilitation of historic structures within the Shenandoah Plaza Historic District would follow the Guidelines for the Rehabilitation of Historic Structures developed by the Architectural Resources Group for NASA and within the Ames Campus would follow the Secretary of the Interior Guidelines for the Rehabilitation of Historic Structures in order to maximize seismic safety while minimizing effects on the integrity of any structure on or eligible for the National Register of Historic Places.	Partner	Standard Practice	During design	Y	Ames Historic Preservation Officer/DRB	Permit review	As required	Y	As required
GEO - 2	All new buildings at Ames Research Center would be designed to meet the current Uniform Building Code regulations for seismic safety.	Partner	Standard Practice	Design	Y	Ames Historic Preservation Officer/DRB	Permit review	As required	N	
GEO - 3	All new construction would be designed based on geotechnical analyses of proposed sites to determine the structural measures necessary to counter the shrink-swell potential of the soil and the risk of structural damage from ground subsidence.	Partner	Standard Practice	Design	Y	Ames Historic Preservation Officer/DRB	Permit review	As required	N	
GEO - 4	Prior to construction of individual facilities, NASA would conduct detailed geotechnical investigations of all proposed building sites, and would incorporate the engineering recommendations of these studies into building designs and construction.	Partner	Standard Practice	Design	Y	Permit Board	Permit review	As required	N	
BIO - 1	<p>To minimize the potential for injury or death caused by construction vehicles to western burrowing owls or migratory birds in all four planning areas and to salt marsh harvest mice in the Bay View area, the following components would be implemented:</p> <ul style="list-style-type: none"> - Construction traffic would not be routed on roads adjacent to habitats where these special-status species occur and would be prohibited from using roads when habitat considerations require it. - Occupied or potential habitat for these species near established routes would be marked as off-limits to construction vehicles. - In the Bay View area, if construction vehicles must travel on roads within approximately 30 meters (100 feet) of occupied or potential habitat, drift fencing would be erected to prevent salt marsh harvest mice from crossing these roads. The drift fencing would be placed so that harvest mice retain access to adjacent upland habitats for use as refugia during high water events. - All drivers of construction vehicles would be informed of the established vehicle routes and made aware of the importance of avoiding occupied and potential habitat for western burrowing owls and salt marsh harvest mice. 	Partner/ Construction contractor NASA Environmental Construction contractor	Minimal ISP Minimal	Final design Prior to construction During filling & grading	Y	QE	Permit review	As required	N	

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Construction activities would not be allowed to disturb nesting migratory birds.	Partner/ Construction contractor	Minimal	During construction						
BIO - 3 Landscaping would be designed with native species (with the possible exception of lawn areas). Invasive plants would not be used in any landscaping. Any imported soil used for landscaping must be certified as weed-free. Similarly, any erosion-control structures that contain hay or other dried plant material (e.g., hay bales) must be certified as weed-free. Any construction equipment operating within 76 meters (250 feet) of jurisdictional wetlands or other sensitive habitats in the Bay View area would be washed with reclaimed water prior to use in this area to remove potential weed seeds. The construction zone would be surveyed periodically by a qualified botanist, so that any infestations of invasive species that establish within the construction zone of the Bay View area can be eradicated before the plants can flower and set seed.	Partner	Varies	Design & construction	Y	QE	Permit review	As required	N	
BIO - 4a NASA and its partners would institute the following programs and policies to limit increases in predator populations: <ul style="list-style-type: none"> Prohibit employees from feeding wildlife, including cats. Institute and enforce a no pets policy in new housing. Install trash containers that cannot be opened by predator species. 	Partners/NASA Housing Developer TANASA	Minimal Minimal Minimal \$8,750/year	Ongoing Ongoing Design/ construction Ongoing	Y	QE	Lease review	As required	N	
<ul style="list-style-type: none"> Augment the existing non-native predator control program, which includes humane trapping and removal of feral cats and other non-native predators. Conduct a public education program about the impacts caused by non-native predators and the need to refrain from feeding feral cats and other wildlife. A regular construction cleanup crew would be designated to ensure that construction debris and trash do not attract predators or scavengers. Humanely trap and remove predators, including, but not limited to, red fox, skunk, raccoons, rats, feral cats and dogs. 	TANASA Partners/ construction contractors NASA/QE	Nominal Minimal ISP	Ongoing Prior to construction Ongoing	Y Y Y	QE/DRB/ CPB QE	Permit review OWI Survey	As required Annual	N N N	
BIO - 4b Design north and east fences bordering Bay View housing to eliminate movement of potential predators from the housing area to sensitive wildlife areas. The design would include: <ul style="list-style-type: none"> Burying the bottom portion of the fence at least 18 inches below ground level. Making the fencing grid size small enough to prevent rats from passing through. Placing roll wire along the top of the fencing to eliminate predators climbing over the fence and to deter avian predators from perching. 	Housing Developer	Included in X-8	Design/ Construction	Y	QE/DRB/ CPB	Permit review	As required	N	
BIO - 6 NASA and its partners would use trash receptors that are animal resistant, and will maintain a regular garbage disposal schedule.	Partners/NASA	Varies	Ongoing	Y	QE	Site visits	Periodic	N	
BIO - 7 NASA would conduct a lighting study to determine baseline lighting levels.	NASA/ Development Office	In process	Prior to design in Bay View	Y	QE	Conduct study	Once	Y	Once at completion of study

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	When feasible, nighttime lighting would be excluded in new development adjacent to high-quality wildlife habitat in the North of the Bay View area. No net increase in lighting in north and east of Bay View housing would occur. The impacts of necessary lighting would be minimized by using low-glare light sources (e.g., low pressure sodium lighting) mounted on short poles and directed away from native habitats. In addition, light amplification to nearby sensitive areas would be eliminated through directional lighting with baffles, non-reflective lining on windows, and other mechanisms.	Housing Developer	Varies	Design/ construction	Y		Permit review	As required	Y	Every 3 years
BIO - 9	NASA would: <ul style="list-style-type: none"> Protect owl burrows wherever possible through careful site planning and inspection during construction. Where burrows must be removed, avoid owls outside the breeding season via passive relocation based on a plan developed by a qualified owl biologist. Replace lost burrows outside of the nesting season, before construction begins. Burrows would be replaced at a 3:1 ratio either within the owl preserves or in other suitable on-site habitat areas. Place a Habitat Conservation Easement over burrowing owl preserves 	Partner Partner Partner NASA	Minimal \$2500 for all habitat areas \$200 per burrow ISP	Design & construction Prior to construction Prior to construction Prior to construction	Y	QE	Owl Survey	Annual	Y	Annual Owl
BIO - 10	NASA would: <ul style="list-style-type: none"> Establish a burrowing owl preserve in the NRP area which would prevent impacts to owls currently nesting within the future preserve area, and mitigate impacts to owls that might be disturbed by development on NRP Parcels 7 and 8. Restoration and enhancement of the preserve in the NRP area sufficient to offset development impacts would occur prior to that development. Remove existing buildings and pavement Plant with native grasses, and border of low-growing native shrubs Build artificial burrows Cut grass on regular schedule, at least two times per year, to maintain height less than 6 inches; within 25 feet of burrow, use light-weight mower Design landscaping in developed areas with low growing native vegetation to enhance owl use. Minimize the development footprint to the extent possible, and locate new development adjacent to existing development to minimize habitat fragmentation. Minimize construction impacts on nesting and foraging habitat by restricting the area available for circulation and staging of equipment. Manage other grassland areas at Ames Research Center to support owls and their prey. 	Parcel 8 developer Parcel 8 developer Parcel 8 developer TA Partner NASA Development Office Partner/ Construction contractor NASA -Ames Campus and Eastside/Airfield; Housing Dev-Bayview, TA-NRP	\$410,000 \$200,000 \$200 per burrow \$7,500 per acre/yr \$50,000 Minimal Minimal \$7,500 per acre/yr	Prior to Parcel 8 development Prior to Parcel 8 development Prior to Parcel 8 development Ongoing Design Design Design & construction Ongoing	Y	QE	Permit review	As required	N	

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Mitigation Description	Responsible Party	Cost	When	Monitoring Required (Y/N)	Monitor*	Monitoring Method	Frequency	Report	Frequency
BIO-11a In order to minimize short-term disturbances from construction, NASA and its partners would adopt the Burrowing Owl Habitat Management Plan (BOHMP), which recommends the following: - Construction near owl habitat would be scheduled outside of breeding season, which typically runs from February 1 to August 31, as much as possible. - Construction would be kept as far from nesting areas as possible. If possible, NASA would maintain a minimum 49-meter (160-foot) buffer around occupied burrows during the non-nesting season, and a minimum 76 meter (250-foot) buffer during the nesting season. - If it is not possible to maintain these distances, NASA would work with a qualified owl biologist to determine appropriate distances from active burrows, fence burrows off from construction activities, and provide owls the opportunity to move by installing artificial burrows further from construction areas before construction begins. - NASA would work with a qualified owl biologist to find circulation routes, staging areas, and areas for other construction activities that will minimize impacts to owls or their burrows. Briefings on burrowing owl conservation will be provided to construction managers, workers, and occupants.	Partner/NASA Development Office Partner/NASA Development Office Partner/NASA Development Office	Minimal Minimal Varies	During Master Scheduling Design Final Design/Prior to construction	Y Y	OE DRB DRB	Permit review Permit review/Lease review	As required As needed	N N	 Annual Owl Survey
BIO-11b In order to prevent long-term disturbances from increases in population associated with implementation of the NADP, NASA would: - Fence off owl habitat in NRP with attractive fencing and low, native shrubs. - Design paths around the perimeter of owl habitat to allow people to see the owls without disturbing them. - Prohibit walkers, bikers, and dogs from moving through the habitat areas. - Use signage to educate people about the owls and their sensitivities. - Monitor habitat areas after construction, and implement further protective measures as needed. - Restrict construction of roads, trails, pathways, and other development from occurring within designated burrowing owl preserves.	Parcel 8 Developer TA TA TA NASA Environmental Office NASA Environmental Office	\$97,600 \$191,600 Minimal \$1,170/ea ISP ISP	Prior to Parcel 8 development Prior to TDM Phase 3 Ongoing Prior to TDM Phase 3 Ongoing Design	Y Y	OE DRB DRB DRB	Lease review 	As required 	Y 	Annual Owl Survey
BIO-12 In order to prevent vehicle collisions with burrowing owls, NASA and its partners would: - Post 25 MPH speed limits along roads adjacent to owl habitat. - Route traffic away from owl habitat as much as possible, especially at night. - Plan new roads and other transportation corridors away from owl habitat wherever possible. - Monitor traffic impacts to burrowing owls, and implement additional mitigation measures if necessary.	LM/Housing Developer NASA/Housing Developer NASA/Housing Developer NASA CE/TA	\$250-300/ea None None ISP	During road construction Master Planning Master Planning Ongoing	Y 	DRB OE	Permit review 	As required 	Y 	Annual Owl Survey

*Cost of monitoring is included in ISP

**TDM Phase 1: 0-2,999 TDM Phase 2: 3,000-5,999 TDM Phase 3: 6,000-7,999 TDM Phase 4: 8,000-project buildout

#	Mitigation Description	Responsible Party	Cost	When	Monitoring Required (Y/N)	Monitor*	Monitoring Method	Frequency	Report	Frequency
BIO - 13	NASA would:									
	- Conduct no squirrel control in the owl preserves, and as little as possible in other owl habitat areas.	TA	None	Ongoing	Y	OE	Lease review	As required	N	
	- Allow squirrels to inhabit areas around new development that will not be used by people.	TA	None	Ongoing						
BIO - 14	- Work with a qualified owl biologist to develop an eradication plan that minimizes effects on burrowing owls if squirrels must be controlled.	TA/OE	\$3,500	Ongoing						
	To protect the owls' prey base, NASA would adopt the BOCHMP, which recommends the following:				Y	OE	Lease review	As required	N	
	- Allow small rodent and insect control only directly around buildings.	TA	Minimal	Ongoing						
BIO - 15	- Forbid the use of blockades adjacent to or within owl habitat.	TA	None	Ongoing						
	- Limit, or if possible, prohibit the killing of small rodents or insects in the owl preserves, enhanced owl habitat, and any other areas where owls nest or forage.	TA	None	Ongoing						
	In order to prevent increased predation, NASA would enforce Mitigation Measure BIO-4, above. In addition, NASA and its partners would:				Y	OE	Permit review	As required	N	
	- Continue on-going efforts to control non-native predators in conjunction with US Fish and Wildlife.	NASA/Partners	ISP	Ongoing						
	- Limit tree planting along roads or buildings adjacent to owl and other wildlife habitat areas to minimize the increase in available perches for avian predators, and modify other potential perches structurally to discourage predators.	Partners	Minimal	Design		DRB				
	- Minimize outdoor lighting posts near burrowing owl and other wildlife habitat to reduce new perches for avian predators. Where lighting is needed for safety reasons, install devices to discourage birds from perching.	Partners	Minimal	Design		DRB				
	- Remove predator perches (light posts primarily) from Bay View and Eastside/Airfield burrowing owl preserves.	Housing Developer - Bayview, and Developer of New Aircraft Control Tower - Eastside/Airfield	\$2,000 per post	Prior to development in those areas	Y	OE/DRB	Required in Bay View Lease	Once	N	
	- Trees in Bay View adjacent to the Western Dikes Marsh would be from the USFWS approved list:	Housing Developer	Minimal	Design/ Construction	Y	OE/DRB/CPB	Permit review	As required	N	
	- Compensate for increases in predation by eliminating predator perches along and within the boundaries of the Western Diked Marsh, Eastern Diked Marsh and Storm Water Retention Pond.	NASA/EEF/JFP	ISP	Prior to Bay View construction	Y	OE/DRB/CPB	Permit review	As required	N	
	• Place roll wire atop all fencing surrounding the eastern and western diked marshes and the storm water retention pond.									
	• Place anti-perch devices on and surrounding the JFP facilities at the northwest corner of ARC property.									
	• If feasible, remove all landscape features within these areas that provide perches for avian predators.									
	- If possible, avoid the use of rip rap on slopes resulting from fill of the Bay View housing area. If rip rap must be used, it must be small diameter materials that would not create habitat for rodents.	Housing Developer	Minimal	Design/ Construction	Y	OE/DRB/CPB	Permit review	As required	N	
	- Avoid placing rip rap on existing marsh vegetation.	Housing Developer	Minimal	Design/ Construction	Y	OE/DRB/CPB	Permit review	As required	N	

#	Mitigation Description	Responsible Party	Est. Cost	When	Monitoring Required (Y/N)	Monitor*	Monitoring Method	Frequency	Report	Frequency
BIO - 17a	NASA would monitor the burrowing owl population change at Ames Research Center- including changes in adult and pair numbers, changes in chick production, and general mortality factors - in relation to these parameters as measured for a reference owl population in Santa Clara County over a 3-year period. The reference population would be determined based on population dynamics research conducted by a qualified ecologist.	OE	ISP	Ongoing	Y	OE	Owl Survey	Annual	Y	Annual Owl Survey
BIO - 17b	If the Ames Research Center owl population or chick production (compared to the reference population) experiences a significant drop, either statistically or in the opinion of a qualified owl biologist over a 3-year time period, NASA would implement these further actions: <ul style="list-style-type: none"> - Hire a qualified owl biologist to determine if the population decline is due to human impacts from development in the NADP and to determine the sources of population decline due to development in the NADP. - Implement actions and management activities designed by a qualified owl biologist to mitigate those sources of population decline and to return population levels to pre-NADP development levels. - Continue monitoring owl population dynamics to determine if the mitigation measures have been successful at stabilizing the population and increasing the population to pre-NADP development levels. Measurements would be based on a 3-year time frame. 	TANASA TANASA OE	\$60,000 Varies ISP	As needed As needed Ongoing	Y	OE	Owl Survey	Annual	Y	Annual Owl Survey
BIO - 18	Potentially contaminated runoff would be managed using stormwater BMPs. Swales would be constructed adjacent to wetlands in upland areas to intercept and filter any runoff before it reaches the wetland. Construction of swales would be permitted within the 61-meter (200-foot) buffer zone around wetlands, but not within the wetlands themselves.	Housing Developer	In process (BKF)	Construction	Y	OE	Periodic Inspection	Annual	N	
BIO - 19	To minimize impacts on wetlands, construction would be avoided in the jurisdictional wetlands along the northern boundary of the Bay View area and within 61 meters (200 feet) of these wetlands. Fill activities and other disturbances would be minimized in jurisdictional wetlands elsewhere.	Housing Developer	\$0	Design & Construction	Y	DRB	Permit Review	As required	N	
NOISE - 1a	For development on NRP Parcels 2,4,9,10,11, 12, 12a, and 16, and the Ames Campus, noise mitigation measures, including site planning to protect noise sensitive outdoor activity areas and building sound insulation treatments to protect noise sensitive indoor spaces, would be included in project design and development. Buildings would be designed to provide an appropriate Noise Level Reduction (NLR) depending upon the designated uses of the sensitive spaces.	Partners	In Process	Design & Construction	Y	DRB/CPB	Permit Review	As required	N	
NOISE - 1b	Residential development proposed on Parcel 6 would be designed so as to achieve an indoor DNL of 45dB or less. The housing would be provided with forced-air mechanical ventilation or air-conditioning as necessary to achieve a habitable interior environment with the windows closed.	Housing Developer	In Process	Design & Construction	Y	DRB/CPB	Permit Review	As required	N	
NOISE - 2a	For development on parcels in the Bay View area near the OARF and the airfield, noise mitigation measures including site planning to protect noise sensitive outdoor activity areas and building sound insulation treatments to protect noise sensitive indoor activity areas and building sound insulation treatments to protect noise sensitive indoor spaces would be included in project design and development. Buildings would be designed to provide an appropriate Noise Level Reduction (NLR) depending upon the designated uses of the sensitive spaces.	Housing Developer	In Process	Master Planning & Design	Y	DRB/CPB	Permit Review	As required	N	

*Cost of monitoring is included in ISP

**TDM Phase 1: 0-2,999 TDM Phase 2: 3,000-5,999 TDM Phase 3: 6,000-7,999 TDM Phase 4: 8,000-project buildout

Mitigation Description		Responsible Party	Cost	When	Monitoring Required (Y/N)	Monitor*	Monitoring Method	Frequency	Report	Frequency
NOISE - 2b	Once development occurs in the Bay View area, NASA would operate the OARF so that noise generated by it would not exceed the following levels when measured on any residential property: Daytime (7am-10pm) Lmax: 70; Leq-hour: 50; Nighttime Lmax: 65; Leq-hour: 45.	NASA FO & JF	ISP	Test Planning & Operations	Y	OE/CH	Management Instruction	Once	N	
AES - 1	NASA and its partners would develop design guidelines for the Bay View, Ames Campus and Eastside/Airfield areas in order to ensure that new buildings would stylistically complement the existing buildings in the Ames Campus and Eastside/Airfield. Design guidelines for the Bay View area would include setback requirements for Stevens Creek and Western Diked Marsh, and would ensure harmonious design.	NASA/Housing Developer	Included in Master Planning of Bay View	Master Planning	Y	DRB	Requirement of Lease	Once	N	
AES - 2	The visual effect of NRP Parcel 6 housing would be mitigated through a combination of landscaping, screening and overall design.	Housing Developer	\$20,000	Design	Y	DRB	Permit review	As required	N	
AES - 3	In order to prevent the obstruction of key views of the hangars and the wind tunnels in Ames Research Center from the areas of Mountain View and Sunnyvale across Highway 101, buildings in the NRP area would be carefully sited to preserve view corridors through the new development, especially from the Whisman Street corridor.	Partners	\$20,000	Master Planning & Design	Y	DRB	Permit review	As required	N	
AES - 4	As the site plan for new development in the Bay View area was developed, NASA and its partners would design the new street layout to preserve view corridors through the new development to the North of Bay View area and the salt ponds.	Housing Developer	See AES-1	Master Planning & Design	Y	DRB	Permit review	As required	N	
AES - 5	NASA and its partners would use height limits and site layout to preserve view corridors from the Stevens Creek Trail through new development in Bay View to the historic hangars and to the San Francisco Bay.	Housing Developer	See AES-1	Master Planning & Design	Y	DRB	Permit review	As required	N	
AES - 6a	Where possible, NASA and its partners would carefully site any development so as to preserve the protected trees.	NASA/Partners	Standard Practice	Master Planning & Design	Y	DRB	Permit review	As required	N	
AES - 6b	Where it is not possible to preserve protected trees in place, NASA and its partners would develop a revegetation plan consistent with the requirements of the Santa Clara County Tree Preservation and Removal Ordinance.	NASA/Partners	\$2,000	Master Planning & Design	Y	DRB	Permit review	As required	N	
CUL - 1	In the event that human remains and/or cultural materials are found in the process of implementing the NADP, all project-related construction would cease within a 15 meter (50-foot) radius in order to proceed with the testing and mitigation measures required pursuant to Section 7050.5 of the Health and Safety Code and Section 5097.94 of the Public Resources Code of the State of California. The State Historic Preservation Officer and the NASA Federal Preservation Officer would be contacted as soon as possible. Construction in the affected area would not resume until the regulations of the Advisory Council on Historic Preservation (36 CFR Part 800) have been satisfied.	Partners/NASA	Varies	Construction	Y	OE	Site Visit	Periodic	Y	As required
In the event of the discovery of human remains, the Santa Clara County Coroner would be notified by the project manager. The Coroner would make the determination as to whether the remains are Native American. If the Coroner determines that the remains are not subject to his or her authority, she would notify the Native American Heritage Commission, who would attempt to identify the descendants of the deceased Native American. If no satisfactory agreement can be reached as to the disposition of the remains pursuant to State law, then the remains would be reinterred with items associated with the Native American burial on the property in a location not subject to further disturbance.		Partners/NASA	Varies	Construction						

*Cost of 1 is included in ISP
 **TDM Pht. J-2,999 TDM Phase 2: 3,000-5,999 TDM Phase 3: 6,000-7,999 TDM Phase 4: 8,000-project buildout

	Mitigation Description	Responsible Party	Cost	When	Monitoring Required (Y/N)	Monitor*	Monitoring Method	Frequency	Report	Frequency
CUL - 2	Any project that involves the rehabilitation of contributing buildings within the Shenandoah Plaza Historic District would follow the Programmatic Agreement (PA) and Historic Resource Protection Plan. Appropriate landscaping will be used to avoid impact to historic buildings. This Historic Resource Protection Plan includes the Guidelines for Rehabilitation of Historic Structures prepared for NASA by Architectural Resources Group, and the Reuse Guidelines for Hangar One, prepared by Page and Turnbull, both of which comply with the Secretary of the Interior's Standards.	Partners	Standard Practice	Design	Y	Ames Historic Preservation Officer/DRB	Permit review	As required	N	
CUL - 3a	Any new building or addition to an existing building constructed within the portion of the Shenandoah Plaza Historic District that lies within Ames Research Center would follow the PA and Historic Resources Protection Plan, which includes the Design Guidelines for New Construction in the Shenandoah Plaza Historic District prepared for NASA by Architectural Resources Group (ARG). These guidelines set parameters for compatible designs including orientation, height, setback, materials and style. The guidelines also indicate which areas must not be used as building sites.	Partners	Standard Practice	Master Planning/Design	Y	Ames Historic Preservation Officer/DRB	Permit review	As required	N	
CUL - 3b	Any project undertaken within the vicinity of designated or potentially-designated resources, structures or districts would be subject to review by the State Historic Preservation Officer through the Section 106 process of the National Historic Preservation Act. Any agreed upon mitigation, such as plan modification and design harmony, would be undertaken.	Partners	\$5,000-7,000 new bldgs (Standard practice for historic bldgs)	Conceptual Design	Y	Ames Historic Preservation Officer/DRB	Permit review	As required	Y	As required
SOCIO-1a	NASA will continue to attempt to acquire the rights to occupy as much of the Department of Defense (DOD) housing located at Moffett Field as possible to bolster the projected supply provided under each of the alternatives.	NASA/Housing Developer	ISP	Ongoing	Y	NASA Development Office	Coordination with Department of Defense	Ongoing	N	
SOCIO-1b	NASA would provide 1,120 townhome and apartment units in the Bay View area, and 810 student apartment and dormitory units in the NRP area. If this level of housing development could not be achieved, NASA would commensurately scale back the employment generating component of the project. The next phase of development will not occur until the housing for the previous phase has been constructed. Note: The FPEIS states that Phase 1 ends at 2,999 employees/daytime students, whereas the TDM Plan states that it ends at 2,675 employees/daytime students. 2,999 is the correct number, because it takes into account the proposed increase in the Ames Campus employees.	NASA/Housing Developer	\$180/sf renovate \$160/sf Bay View		Y	OE/DRB	Monitored with Phasing	Annual	Y	Annually after Phase 1 completion cc: City of Mountain View
SOCIO-1c	<ul style="list-style-type: none"> • 25% constructed - TDM Phase 1 • 50% constructed - TDM Phase 2 if housing built in Phase 1 is at least 90% occupied) • 75% constructed - TDM Phase 3 (if housing built in Phases 1 and 2 is at least 90% occupied) • 100% constructed - TDM Phase 4 (if housing built in Phases 1, 2, and 3 is at least 90% occupied) • Portions of Bldg 19 would be converted to housing, after site contamination issues are resolved, if the previously built housing is at least 90% occupied. 	NASA/Housing Developer	ISP	At time of retail construction and after Phase 4 housing is constructed	Y	QE	Update Human Health Risk Assessment & EIMP	At time of retail construction and after Phase 4 housing is constructed	Y	At time of retail construction and after Phase 4 housing is constructed

*Cost of monitoring is included in ISP

**TDM Phase 1: 0-2,999 TDM Phase 2: 3,000-5,999 TDM Phase 3: 6,000-7,999 TDM Phase 4: 8,000-project buildout

#	Mitigation Description	Responsible Party	Cost	When	Monitoring Required (Y/N)	Monitor*	Monitoring Method	Frequency	Report	Frequency
SOCIO-1d	NASA would require that at least 10 percent of the on-site housing to be affordable to low income households.	NASA/Housing Developer	7TBD?	As each Phase is constructed	Y	NASA Development Office/QE	Review of housing rental rates	When rates are set	N	
SOCIO-3	NASA's partners would pay the amount that exceeds 0.5 percent of the revenue limit to the Mountain View-Los Altos School District in the years that it is exceeded.	Partners	unknown	When amount is > 0.5% of revenue	Y	NASA Development Office	Track impacts in school district	Annual	N	
The following mitigation measures are not numbered in the FPEIS, but are built into the project assumptions:										
X-1	Common area bike racks	TMA pro rata	\$15,300	Phased in with project road build out	Y	DRB	Permit review	As required	N	
X-2	Install sidewalk along Wescoat to enable pedestrian access	TA pro rata	\$200,000	During TDM Phase 2	Y	QE/DRB	Permit review	As required	N	
X-3	Reduce solid waste - Recycle glass, paper, metal, cardboard, plastic, etc.	TA	\$15,500/yr for cardboard \$57,000/yr for others	Ongoing	Y	QE	Review of Partner's data.	Annual	N	
X-4	Reduce solid waste - Recycle demolition debris	Partner/ Construction contractor	TBD	During demolition	Y	QE	Review of Partner's data.	Annual	Y	
X-5	Reduce solid waste - Compost and reuse landscaping debris	TA	ISP	Ongoing	Y	QE	Review of Partner's data.	Annual	Y	
X-6	Connect landscaping irrigation in Shenandoah Plaza to Navy's treated groundwater	Pro rata Shenandoah Plaza District Partners	\$200,000	Prior to development of Parcel 13, 14 & 15	Y	QE/DRB	Permit review	As required	N	
X-7	Create green space west of Hangar 1	Developer of Parcels 13, 14 & 15	\$850,000	Prior to development of Parcel 13, 14 & 15	Y	QE/DRB	Permit review	As required	N	
X-8	Install new perimeter fence and 2 new security gates in Bayview area	Housing Developer	\$250,000	Prior to Bayview construction	Y	JP/DRB	Permit review	As required	N	
X-9	Pay Mountain View-Los Altos High School District a mitigation fee whenever students from Bayview Housing cause the School District's expenses to exceed its annual revenue limit by more than 0.5%. The fee shall be the difference between the % greater than the revenue limit, and 0.5% of the annual revenue limit.	Housing Developer	Varies	Any year when expenses exceed revenue limit by >5%	Y	NASA Development Office	Work with school district	Annually	Y	Annually once Phase 1 of Bay View is complete
X-10	Create 11 acres of open space in NRP	University Reserve Master Planner	Integral with development costs	During development of NRP	Y	DRB	Permit review	As required	N	

*Cost ing is included in ISP
 **TDM 1: 0-2,999 TDM Phase 2: 3,000-5,999 TDM Phase 3: 6,000-7,999 TDM Phase 4: 8,000-project built.

	Mitigation Description	Responsible Party	Cost	When	Monitoring Required (Y/N)	Monitor*	Monitoring Method	Frequency	Report	Frequency
X-11	Create ball field on Parcel 3 of Ames Campus	NASA	\$50,000-100,000	In first year of development	Y	DRB	Permit review	As required	N	
X-12	Create recreational space on Parcels 4 and 5 of Bayview	Housing Developer	\$787,800	During housing development	Y	DRB	Permit review	As required	N	
X-13	Pay developer impact fee to Mountain View-Whisman School District	Housing Developer	\$1.37/sf	Development of Bay View	Y	NASA Development Office	Permit review	As required	N	
X-14	Pay developer impact fee to Mountain View-Los Altos High School District	Housing Developer	\$0.68/sf	Development of Bay View	Y	NASA Development Office	Permit review	As required	N	
X-15	Pay construction tax to Mountain View for Bay View development.	Housing Developer	\$75/unit \$0.08/sf for commercial	Development of Bay View	Y	NASA Development Office	Permit review	As required	N	
X-16	Construct onsite childcare in NRP	Housing Developer	Varies	TDM Phase 1	Y	NASA Development Office	Permit review	As required	N	
X-17	Construct onsite childcare in Bayview	Housing Developer	Varies	TDM Phase 3	Y	NASA Development Office	Permit review	As required	N	
X-18	Convert Eastside/Airfield golf course irrigation system to reclaimed water	NASA	\$200,000	TDM Phase 3	Y	QE	Embedded in lease renewal	Once	N	
X-19	Enhance burrowing owl preserve in Bay View, if needed. This could consist of constructing artificial burrows if any owls must be displaced to allow construction in the Bay View area.	Housing Developer	\$200 per burrow	During housing development	Y	QE	Required in Bay View Lease	Once	N	
X-20	Develop pedestrian circulation routes in NRP	Partners	Included in Due Diligence	Master planning through construction	Y	DRB	Permit review	As required	N	
X-21	Coordinate with VTA regarding bicycle facilities	Partners/TMA	Standard Practice	Master planning/design	Y	DRB	Work with VTA	Early in lease development	N	
X-22	Ensure infrastructure of roads, bike lanes, shuttle/bus stops and pedestrian routes proceeds systematically	Partners/TMA	Standard Practice (dependent on Phasing Plan)	Master planning/design	Y	Development Office/DRB	Permit review	As required	N	
X-23	Sign Memorandum of Agreement with California Department of Fish and Game to establish conservation easement on burrowing owl preserves that would be recorded on deed prior to any transfer of the property	NASA Real Property Office	Minimal	Before ROD	Y	QE	Work with Fish & Game	Once/ reserve	N	
X-24	Construct stormwater infiltration measures, e.g., swales, permeable pavement, rooftop gardens, etc. to ensure that rate and quantity of stormwater runoff after construction does not exceed the rate and quantity before construction. OR	Partners	\$2,000,000 (NRP only)	Master planning through construction	Y	QE/DRB	Permit review	As required	N	

*Cost of monitoring is included in ISP

**TDM Phase 1: 0-2,999 TDM Phase 2: 3,000-5,999 TDM Phase 3: 6,000-7,999 TDM Phase 4: 8,000-project buildout

#	Mitigation Description	Responsible Party	Cost	When	Monitoring Required (Y/N)	Monitor*	Monitoring Method	Frequency	Report	Frequency
	Box culverts for NRP	Partners	\$9,700,000 (NRP only)	Master planning through construction	Y	QE/DRB	Permit review	As required	N	
X-25	Add bike paths to RT Jones Road	Housing Developer	In process	Prior to TDM Phase 3	Y	DRB	Permit review	As required	N	
X-26	Obtain LEED certification for new buildings	Partners	Varies	Design/ Construction	Y	QE	Permit review	As required	N	
The following mitigations were added as responses to comments:										
X-27 EPA AQ-7a	Install air pollution control devices, for example, particulate traps and oxidation catalysts, on construction equipment to the greatest extent that is technically feasible	Partners/ Construction Contractors	Minimal	Design/ construction	Y	QE/DRB/ CPB	Permit review	As required	N	
X-28 EPA AQ-7c	Prepare and implement a Construction Emissions Mitigation Plan (CEMP) to ensure reduction in impact from diesel PM and NOx from construction. The CEMP would ensure that heavy equipment is properly maintained at all times, ensure that all construction-related engines are tuned to the engine manufacturer's specifications in accordance with the time frame recommended by the engine manufacturer; not idle for more than five minutes; not tampered with in order to increase engine horsepower; include particulate traps, oxidation catalysts and other suitable control devices on all construction equipment used at the site; and use diesel fuel having a sulfur content of 15 ppm or less, or other suitable alternative diesel fuel, unless such fuel cannot be reasonably procured in the market area. Ensure that construction-related tips are minimized through appropriate policies and implementation measures.	NASA would prepare the CEMP to be implemented by Partners/Construction Contractors	\$15,000-25,000	Design/ construction	Y	QE/DRB/ CPB	Permit review	As required	N	
X-29 EPA AQ-7b	Consult with BAAQMD on an annual basis during the project's construction to determine if additional air quality mitigation for criteria air pollutants and/or toxic air contaminants is warranted. Amend CEMP accordingly.	NASA would consult with BAAQMD and amend CEMP, which would be implemented by Partners/	ISP	Ongoing	Y	QE/DRB/ CPB	Work with BAAQMD	Annually	N	
X-30 EPA AQ-7c	If construction equipment is leased, to the extent the cost of leasing 1996 or newer model year construction equipment does not exceed 110 percent of the average cost of available leased equipment, the 1996 or newer model year construction equipment shall be used. To the extent that the equipment is owned, 75 percent of the total horsepower for the project from construction equipment shall be from 1996 or newer model year equipment. This requirement will be added to the CEMP.	Partners/ construction contractors	<10% increase in equipment cost in construction project.	Ongoing during construction	Y	QE/DRB/CP B	Permit review	As required	N	
X-31 F&G BIO-15	Remove predator perches (light posts primarily) from Bay View and Eastside/Airfield burrowing owl preserves.	Housing Developer - Bayview, and Developer of New Aircraft Control Tower - Eastside/Airfield	\$2,000 per post	Prior to development in those areas	Y	QE/DRB	Required in Bay View Lease	Once	N	
X-32 F&G chapter 2	Place Habitat Conservation Easement over burrowing owl preserves	NASA	ISP	Prior to development in each area	Y	QE/DRB	NASA legal will prepare	Once	Y	Once when easement is in place.

*Cost
ing is included in ISP
**TDM 1: 0-2,999 TDM Phase 2: 3,000-5,999 TDM Phase 3: 6,000-7,999 TDM Phase 4: 8,000-project built.

#	Mitigation Description	Responsible Party	Cost	When	Monitoring Required (Y/N)	Monitor*	Monitoring Method	Frequency	Report	Frequency
X-33 MV/SV/SJ SOCIO-1b	Renovate NRP Buildings 19 & 20 for housing. Add 370 additional units in Bayview.	Housing Developer	\$180/sf renovate \$160/sf Bay View	See SOCIO-1, above	Y	QE/DRB	Monitored with Phasing (See SOCIO-1)	Annual	N	
X-35 F&G BIO-4a	Designate regular construction cleanup crew to ensure that construction trash and debris does not attract predator and scavenger animals	Partners/ construction contractors	Minimal	Prior to construction	Y	QE/DRB/ CPB	Permit review	As required	N	
X-36 MV chapter 2	Establish detailed construction traffic plans, including truck trips and haul routes	Partners/ construction contractors	Standard Practice	Prior to construction	Y	DRB/CPB	Permit review	As required	N	
X-37 F&W BIO-7	No net increase in lighting north or east of Bay View housing Conduct lighting study to determine baseline light levels	NASA/ Development Office Housing Developer	In process Varies	Prior to design in Bay View	Y	QE	Conduct study	Once	Y	Once at completion of study Every 3 years
BIO-7	No net increase in lighting - Eliminate light amplification to nearby sensitive areas through directional lighting with baffles, non-reflective tinting on windows, and other mechanisms				Y	QE/DRB/ CPB	Permit review	As required	Y	
X-38 F&W BIO-4a	Implement perpetual predator management program. Trap and remove predators, including but not limited to, red fox, skunks, raccoons, rats, feral cats and dogs.	NASA/OE	ISP	Ongoing	Y	QE	Owl Survey	Annual	N	
X-39 F&W BIO-4b	Design north and east fences bordering Bay View housing to eliminate movement of potential predators from the housing area to sensitive wildlife areas Bury bottom portion of fence at least 18 inches below ground level Make fencing grid size small enough to prevent rats from passing through Place roll wire along the top of the fencing to eliminate predators climbing over the fence and to deter avian predators from perching	Housing Developer	Included in X-8	Design/ Construction	Y	QE/DRB/ CPB	Permit review	As required	N	
X-40 F&W BIO-15	Compensate for increases in predation by eliminating predator perches along and within the boundaries of the western diked marsh, eastern diked marsh, and storm water retention pond. Place roll wire atop all fencing surrounding the eastern and western diked marshes and the storm water retention pond Place anti-perch devices on and surrounding the JFP facilities at the northwest corner of AHC property If feasible, remove all landscape features within these areas that provide perches for avian predators	NASA/FEF/JFP	ISP	Prior to Bay View construction	Y	QE/DRB/ CPB	Permit review	As required	N	
X-41 F&W BIO-15	Use trees from US Fish & Wildlife Service's approved list as landscaping in Bay View housing area	Housing Developer	Minimal	Design/ Construction	Y	QE/DRB/ CPB	Permit review	As required	N	
X-42 F&W BIO-15	If possible, do not use rip rap on slope resulting from fill of Bay View housing area - if rip rap must be used, it must be small diameter materials that will not create habitat for rodents. Do not place rip rap on existing marsh vegetation Instead of rip rap, create more gradual slope (4-5H:1V) and plant native vegetation on newly graded area to provide transitional habitat	Housing Developer	Minimal	Design/ Construction	Y	QE/DRB/ CPB	Permit review	As required	N	

Legend: CPB-Construction Permit Board, DRB-Design Review Board, FEF-Facilities Engineering, ISP-Institutional Shared Pool, JFP-Plant Engineering, JP-Protective Services (Security), QE-Environmental Services, OH-Safety, Health, & Medical Services, PARWOC-Palo Alto Regional Water Quality Control Plant, BAAQMD-Bay Area Air Quality Management District, BOHMP-Burrowing Owl Habitat Management Plan, MV-Mountain View, EIMP-Environmental Issues

*Cost of monitoring is included in ISP

**TDM Phase 1: 0-2,999 TDM Phase 2: 3,000-5,999 TDM Phase 3: 6,000-7,999 TDM Phase 4: 8,000-project buildout

