APPENDIX A

EPA CORRESPONDENCE

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U.S. Department of Transportation
Federal Highway Administration

Nevada Division

705 N. Plaza Street, Suite 220
Carson City, NV 89701
Phone 775 687-1204
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July 18, 2014

In Reply Refer To:
HENV-NV

Amy Zimpfer
Associate Director, Air Division
EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

SUBJECT: EPA Regulation of Naturally Occurring Asbestos – I-11 Boulder City Bypass Project

Dear Ms. Zimpfer:

The I-11 Boulder City Bypass Project proposes a new 15-mile Interstate in Southern Nevada. The project's Final Environmental Impact Statement (FEIS) was finalized in March 2005, with the Record of Decision (ROD) approved by FHWA in December 2005 (FHWA-NV-EIS-00-02-F). The Federal Highway Administration (FHWA) is the lead federal agency, with the Nevada Department of Transportation and the Regional Transportation Commission of Southern Nevada serving as sponsoring agencies. Other cooperating agencies involved include: U.S. Bureau of Reclamation, National Park Service, Western Area Power Administration, Clark County Department of Public Works, Bureau of Land Management, City of Boulder City, and City of Henderson.

A study published by the University of Las Vegas in November 2013 discovered the presence of Naturally Occurring Asbestos (NOA) in the vicinity of the project alignment. The FEIS/ROD is currently being re-evaluated to better understand what impacts and mitigations, if any, the project will have on emissions of asbestos-containing dust.

After conducting a review it was found that existing statutes and regulations administered by the EPA that could potentially regulate NOA are:

Clean Air Act – 42 U.S.C. §7401-7515 and 40 CFR 50-98
Toxic Substances Control Act – 15 U.S.C. §2601-2692 and 40 CFR Parts 700-799.

Based on this review, neither of the statutes or regulations identified above is applicable to NOA in soils or airborne emissions. Regulations do not consider soils with NOA in concentrations equal to or exceeding 1% to be an asbestos containing hazardous waste and as such do not require disposal within an asbestos approved landfill. Additionally, the State of Nevada and Clark County have not enacted laws or adopted regulations addressing NOA.

In the absence of clear regulatory thresholds governing NOA in Southern Nevada, the current review of the FEIS/ROD proposes adding mitigation measures based on the California Air Resources Board (CARB) Asbestos Airborne Toxic Control Measures (ATCMs) and California Department of Toxic Substances Control (DTSC) regulations.

While the EPA does not currently regulate NOA, we ask that you please respond by August 18, 2014 with any comments or input regarding the project's proposed implementation of CARB and DTSC control measures for disposal and reuse of soils containing NOA. This will streamline updates to the FEIS and ensure inter-agency coordination. FHWA will also be contacting the Occupational Safety and Health Administration (OSHA) to clarify what their role will be in the project. If you have any questions please contact Greg Novak, Major Projects Manager at (775) 687-1203, or Abdelmoez (Del) Abdalla, Environmental Program Manager at (775) 687-1231.

Sincerely,

Susan Klekar
Division Administrator

cc: Joel Jones, EPA Region 9
Daniel Stralka, EPA Region 9
Gary Miller, Clark County DAQ
Rudy Malfabon, NDOT
Steve Cooke, NDOT
Tina Quigley, RTC of Southern Nevada

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

AUG 15 2014

Susan Klekar
Federal Highway Administration
705 N. Plaza Street, Suite 220
Carson City, NV 89701

Subject: Re-evaluation of I-11 Boulder City Bypass Project Due To Presence of Naturally Occurring Asbestos

Dear Ms. Klekar:

The U.S. Environmental Protection Agency has reviewed the July 18, 2014 letter from the Federal Highway Administration regarding the finding of naturally occurring asbestos in the project area of the proposed Boulder City Bypass. EPA reviewed the Draft and Final Environmental Impact Statements for the proposed project and provided comment letters on May 10, 2002 and May 13, 2005, respectively. From a National Environmental Policy Act (NEPA) perspective, your determination that naturally occurring asbestos is found at the project site and will be disturbed by construction is significant new information that has arisen since the Record of Decision was signed in 2005. We therefore support the FHWA decision to consider this new information in your agency's NEPA re-evaluation process and to use this information to determine the need for additional environmental analysis, documentation, or revisions to the project.

We agree that neither regulations promulgated pursuant to the Clean Air Act nor regulations promulgated pursuant to the Toxic Substances Control Act apply to the disturbance of naturally occurring asbestos during the construction of a roadway. We believe it is appropriate for FHWA to further analyze and disclose to the public the potential impacts to workers and residents from construction and operation of the new roadway, and to identify and commit to protective measures to address such impacts. The presence of naturally occurring asbestos heightens the importance of committing to the most effective measures to control dust and minimize surface disturbance, and we encourage you to continue working with Clark County Air Quality Management District to implement best management practices, including, as appropriate, those identified in your letter.

Please coordinate with Connell Dunning, the lead reviewer for this project, regarding any future project revisions or possible updates through the NEPA process. Connell can be reached at 415-947-4161 or dunning.connell@epa.gov.

Sincerely,

Lisa B. Hanf, Assistant Director
Enforcement Division

cc: Gary Miller, Clark County Department of Air Quality
Rudy Malfabon, NDOT
Steve Cooke, NDOT
Tina Quigley, RTC of Southern Nevada

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APPENDIX B

EPA NATURALLY OCCURRING ASBESTOS FACT SHEET

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Naturally Occurring Asbestos: Approaches for Reducing Exposure

Purpose and Intended Audience

This fact sheet provides an overview of approaches for reducing exposures to naturally occurring asbestos (NOA). It is intended to make general information about management options available to state and local government officials, project managers, and environmental professionals. The information should serve as a starting point for identifying current NOA management practices. In general, selecting an appropriate approach to reduce NOA exposure should be determined on a location-specific basis.

NOA management approaches can reduce but may not completely eliminate potential exposures to naturally occurring asbestos.

Information contained in this fact sheet was obtained from the currently available literature, including state and local government publications. To obtain more information on NOA management approaches, including their performance and frequency of use, refer to the resources provided at the end of this fact sheet.

Naturally Occurring Asbestos

NOA occurs in rocks and soil as a result of natural geological processes. Natural weathering and human activities may disturb NOA-bearing rock or soil and release mineral fibers into the air, which pose a greater potential for human exposure by inhalation.

The U.S. Geological Survey (USGS) has an ongoing project to map the locations of historical asbestos mines, former asbestos exploration prospects, and natural asbestos occurrences. At least 35 states have reported NOA locations. To locate NOA areas in a specific part of the country, begin by consulting the USGS reports (see below) and contact a state geologist.

U.S. Geological Survey	• Eastern United States http://pubs.usgs.gov/of/2005/1189/ • Central United States http://pubs.usgs.gov/of/2006/1211/ • Rocky Mountain States http://pubs.usgs.gov/of/2007/1182/ • Southwestern United States http://pubs.usgs.gov/of/2008/1095/
California Geological Survey	Asbestos Reports, Maps, and Guidelines for Geologic Investigations • http://www.conservation.ca.gov/cgs/minerals/hazardous_minerals/asbestos/Pages/Index.aspx

In this fact sheet, NOA does not refer to commercially processed, asbestos-containing material, such as insulation and fire protection in buildings or automobile brake linings. Information about commercial asbestos-containing products is available in other publications, including the resources mentioned on EPA's asbestos Web page http://www.epa.gov/asbestos.

Approaches for Mitigating Exposures to NOA

The following general approaches to mitigate inhalation exposures to NOA are aimed at reducing NOA releases from rock or soil into the air:

- Leave NOA material in place and undisturbed
- Cover or cap NOA material
- Limit dust generating activities
- Excavate and dispose of NOA material

Approaches for reducing NOA exposure are similar to practices used for asbestos-containing materials in commercial applications.

Depending on the situation, a combination of engineering controls, work practices, and institutional (administrative) controls may be needed to implement an approach and reduce potential exposures to NOA. Selecting an approach depends on factors including:

- Accessibility of NOA (ground surface vs. below ground surface)
- Types of activities that disturb NOA (construction project vs. gardening)
- Climate and weather conditions
- Current and future land uses
- Technical and administrative feasibility of the approach

Typical engineering controls involve the use of covers and caps, vegetation, fencing, landscaping, and in some conditions, the application of water to suppress dust. Local factors, such as climate, influence the extent to which these approaches are implemented. For example, areas with dry or windy conditions may need more dust control than those with humid or less windy conditions.

Common work practices include limiting activities on NOA-containing areas, reducing driving speed on unpaved roads that may contain NOA, and cleaning vehicles driven over NOA. For example, during road construction or maintenance activities on unpaved areas where NOA is present, the Asbestos Airborne Toxics Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations of the California Air Resources Board (ARB) requires that vehicle speeds not exceed 15 miles per hour.[1] Worker health and safety measures that include respiratory protection may be warranted. For information, consult with Occupational Safety and Health Administration Asbestos Standards for the General Industry and Asbestos Standards for the Construction Industry (http://www.osha.gov/SLTC/asbestos/hazards.html).

Examples of Engineering and Work Practices that Reduce Exposure to NOA

Excavation, Grading, or Utility Work at Construction Projects	• Wet road surfaces with water using trucks, hoses, or sprinklers[1] • Wet piles of excavated material and cover them with tarps, plastic sheeting, or other items[1] • Continuously mist the work area[1] • Install wind barriers around the work area[1] • Clean or decontaminate equipment and vehicles to ensure that no equipment or workers track soil out of the work area (a gravel pad, tire shaker, or wheel wash system may be used to clear soil from vehicles)[1] • Wet the work area using a spray system attached directly to rock cutting or drilling equipment, such as a fine-mist sprayer or a variable-rate fogger nozzle (similar to those used in fire fighting)[2] • Excavate utility trenches to an adequate depth and backfill them with clean soil so that future repair work will not need excavation into potential NOA-containing materials[3] • When transporting NOA-containing materials, avoid overloading trucks; keep the material below the top of each truck compartment and cover material with a tarp[4] • Limit personnel and vehicle access to the work area[5] • Identify NOA-containing areas with signs[2] • Reduce driving speed[1] • Reduce drilling or excavating speeds[6] • Excavate during periods of calm or low winds[1]
Roads and Parking Areas (unpaved and gravel roads)	• Cover roads with non-NOA-containing rock, chemical sealants or dust suppressants, chip seals, limestone aggregate, petroleum sealants, or asphalt cement paving[1, 7, 8] • Wet road surfaces with water[1] • Install windbreaks or berms[1] • Reduce driving speed[1] • Avoid dusty areas, especially in windy conditions[1]

Around Communities (playgrounds, ball fields, pathways, and gardens)	• Cover areas of rock and soil with clean soil, rock, vegetation, or other material (see next section, General Considerations for Using Covers or Caps)[3, 9] • Pave over unpaved walkways, driveways, or roadways containing NOA[1, 10] • Landscape areas with vegetation, such as NOA-tolerant plants, and add a layer of organic mulch or NOA-free soil. Water plants often until they are established to minimize erosion[9] • Water garden areas before digging[9] • Keep windows and doors closed on windy days and during periods when nearby rock or soil may be disturbed, such as during construction[9] • Limit track-in by using entryway (door) mats, and wipe down pets before they enter buildings to reduce the amount of soil tracked indoors[4, 9] • Allow children to play in outdoor areas only if the area has a ground covering, such as wood chips, mulch, sand, pea gravel, grass, asphalt, shredded rubber, or rubber mats[4] • Relocate outdoor activities to areas that do not contain NOA (walk, run, hike, and bike only on paved trails)[4] • Avoid dusty areas, especially in windy conditions[11]

General Considerations for Using Covers or Caps

One of the most common engineering controls is to place a cover system over the NOA. Cover materials may include clean soil or rock, concrete, chemical sealants or dust suppressants, chip seals, limestone aggregate, petroleum sealants, asphalt paving, geotextiles, wood chips, mulch, sand, pea gravel, shredded rubber, rubber mats, and vegetation.

The complexity of cover systems can vary from simple (e.g., a single soil layer) to complex (e.g., multiple layers of varying materials). Several factors, including cover material properties and site characteristics, affect the type of cover system appropriate for a particular area.

The availability of materials may influence the type of cover used. Materials that are readily available and close to the NOA area may be more desirable and cost effective than materials found farther away. For example, artificial turf and other imported materials may be more expensive than locally available soils. The cover material will likely need to be assessed for NOA or other undesirable constituents. Expected lifetime, maintenance, and monitoring requirements also affect the cost of covers.

The slope of the NOA area may influence the type and thickness of the cover material used. For example, steep slopes may need vegetation or shotcrete (concrete or mortar sprayed onto a surface with a pressurized hose) to promote slope stabilization. Steep slopes typically have a higher potential for erosion and therefore may demand thicker cover material.

The thickness of the cover material should provide a safety factor sufficient to ensure that airborne releases will not occur. Thicker covers may be needed in areas where there is a significant potential for erosion. The surface of a cover should protect against erosion by wind and rain. Materials used for erosion control typically include a layer of topsoil and vegetation. In areas where adequate vegetation is not possible, gravel, admixtures, or riprap may be used for the surface layer. The thickness of the cover may also depend on the presence of other cover components, such as irrigation lines.

A geotextile, which is a geosynthetic material made of polymer fabric, may be placed below the cover material to mark the presence of NOA and serve as an erosional indicator. Geotextiles also can provide protection, reinforcement, drainage, and separation when applied to the soil surface or between layers of materials. The California Department of Toxic Substances Control (DTSC) recommends that landscaped areas and play fields at schools include a geotextile marker covered by sufficient cover material to provide an effective barrier to reduce NOA exposures.[3] Placement of geotextile markers will demand additional time and expertise.

Long-Term Management Approaches

For long-term management of areas with NOA, institutional controls (ICs) and a maintenance plan may be desirable. In areas where NOA poses potential health concerns, local and state government officials should consider providing educational material to supplement engineering approaches for reducing exposures to NOA. The Agency for Toxic Substances and Disease Registry has developed a fact sheet about asbestos and NOA for the general public entitled "Asbestos and Health: Frequently Asked Questions."[4]

Institutional Controls

For additional information about ICs, refer to the Land Use Controls Web site at http://www.lucs.org

Generally, ICs are administrative or legal mechanisms that are designed to help minimize the potential for human exposure to contamination. They also protect the integrity of the engineering measures. ICs are generally divided into four categories:

- *Government controls* include laws and permits (such as local zoning laws and permits required for excavating or digging). Work that may disturb NOA-containing soil may require government approval and may be subject to local or state construction guidelines. In California, the ATCM of the California ARB requires owners and operators to notify the local air quality management district within one business day of discovering NOA, serpentine mineral, or ultramafic rock in an area to be disturbed by construction, grading, quarrying, or surface mining operations.[1] In Virginia, the Fairfax County Health Department requires a compliance plan that includes air monitoring to ensure effective dust control during construction in areas containing NOA.[2]
- *Proprietary controls* include property use restrictions based on private property laws, such as land use easements or covenants.
- *Enforcement tools* include legally binding documents that require individuals or companies to conduct or prohibit specific actions.
- *Informational devices* include deed notices, public advisories, and other measures (such as warning signs and worker health and safety awareness training) that alert and educate people about an area.

Maintenance Plan

A maintenance plan can help ensure that engineering controls and work practices remain effective. In California, for example, DTSC and school districts enter into an agreement to develop and implement an approved long-term operation and maintenance plan under DTSC oversight. These plans generally contain information about the following topics:[3]

- Building locations, utility line locations, and the thickness of cover material across the area
- Routine inspections

- Maintenance work, including erosion and storm water control
- Procedures for repairing cover damage
- Monitoring activities, such as perimeter or personal air monitoring
- Reporting format and frequency
- Restrictions on future activities that may expose NOA
- Management of imported soil and future excavation or trenching activities

Additional Information

- Agency for Toxic Substances and Disease Registry - http://www.atsdr.cdc.gov/NOA
- California Air Resources Board - http://www.arb.ca.gov/toxics/asbestos/asbestos.htm
- El Dorado County, California - http://www.co.el-dorado.ca.us/emd/apcd/asbestos.html
- Fairfax County, Virginia - http://www.fairfaxcounty.gov/hd/asb
- Sacramento County, California - http://www.airquality.org/compliance/asbestosNaturallyOccurring.shtml
- U.S. Environmental Protection Agency - http://www.epa.gov/asbestos/pubs/clean.html

References

1. California Environmental Protection Agency (Cal/EPA) Air Resources Board (ARB). 2002. Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surfacing Mining Operations. Final Regulation Order. Section 93105. July 22. http://www.arb.ca.gov/toxics/atcm/asb2atcm.htm

2. Fairfax County Health Department. Undated. "Control and Prevention of Asbestos Exposure from Construction in Naturally Occurring Asbestos." http://www.fairfaxcounty.gov/hd/asb/pdf/tbrdpubfin.pdf

3. Cal/EPA Department of Toxic Substances Control (DTSC). 2004. Interim Guidance: Naturally Occurring Asbestos (NOA) at School Sites. September 29. http://www.dtsc.ca.gov/Schools/upload/SMBRP_POL_Guidance_Schools_NOA.pdf

4. Agency for Toxic Substances and Disease Registry. Undated. "Asbestos and Health: Frequently Asked Questions." U.S. Department of Health and Human Services. http://www.atsdr.cdc.gov/NOA/Asbestos-and%20Health.pdf

5. El Dorado County. 2003. Naturally Occurring Asbestos and Dust Protection. Ordinance. Chapter 8.44. June 12. http://www.co.el-dorado.ca.us/emd/apcd/PDF/Naturally_Occuring_Asbestos_June_12.pdf

6. Fairfax County Health Department. Undated. "Basic Elements for a Naturally Occurring Asbestos Compliance Plan." http://www.fairfaxcounty.gov/hd/asb/pdf/asb50.pdf

7. Cal/EPA ARB. 2002. "Fact Sheet #3: Ways to Control Naturally-Occurring Asbestos Dust." January. http://www.arb.ca.gov/toxics/asbestos/3control.pdf

8. Cal/EPA DTSC. 2005. "DTSC Recommends Resurfacing of Serpentine Gravel Roads Based on Garden Valley Study." April. http://www.dtsc.ca.gov/SiteCleanup/Projects/Garden_Valley.cfm

9. Cal/EPA ARB. 2002. "Asbestos-Containing Rock and Soil – What California Homeowners and Renters Need to Know." Compliance Assistance Program. CAP 03-035. http://www.arb.ca.gov/cap/pamphlets/asbestosbrochure.pdf

10. Cal/EPA DTSC. 2006. "Fact Sheet: Recommended Housekeeping Activities to Reduce Exposure to Naturally-Occurring Asbestos in Schools." October. http://www.dtsc.ca.gov/Schools/upload/Recommended_Housekeeping_for_NOA_102306.pdf

11. University of California Cooperative Extension. Undated. "Lake County Serpentine Landscape Demonstration Garden." Asbestos Serpentine Soils Education Program. http://www.capcoa.org/noa/%5B5%5D%20Lake%20County%20Serpentine%20Landscaping.pdf

List of Acronyms

ARB	Air Resources Board
ATCM	Airborne Toxic Control Measure
DTSC	Department of Toxic Substances Control
ICs	institutional controls
NOA	naturally occurring asbestos
USGS	U.S. Geological Survey

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APPENDIX C

OVERVIEW OF BOULDER CITY BYPASS

NATURALLY OCCURRING ASBESTOS

MITIGATION MEASURES

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Overview of NOA Mitigation Measures
Boulder City Bypass Project Document Date 15-Sep-14

Item	Associated Activities	Reference	Threshold	Approach	Data Input	Mitigation Measures
Project-Wide						
Project-Wide Requirements	Applies to entire Project Site	Asbestos ATCM Regulatory Text (17 CCR 93105 and 93106) Clark County DAQ. 2003. Construction Activities Dust Control Handbook. March. Clark County DAQ. 2004. Section 94 Permitting and Dust Control for Construction Activities. EPA. 2005. EPA Uniform Federal Policy for Quality Assurance Plans. EPA-505-F-03-001. March. EPA. 2002. EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5. Final. December.	NA	Develop NMP/ACP that includes but not be limited to: - Personnel Exposure Monitoring Program details - Material, transport, and disposal procedures for material containing NOA - Asbestos Dust Mitigation Plan - Procedures for blasting and crushing to minimize dust Provide a CIH with minimum 10 years experience including 3 years working with NOA or commercially-processed asbestos Provide asbestos competent person Provide Dust Control Monitor Provide Geologist meeting requirements of NRS 514.005 with minimum 10 years field mapping experience including 3 years working with NOA.	SAP and database for: - personal air monitoring - perimeter air monitoring - material usage sampling	See below
Worker Exposure						
Personnel Exposure Monitoring Program	Applies to entire Project Site	29 CFR Part 1926.1101 NIOSH. 1994. Manual of Analytical Methods for Asbestos and other Fibers by PCM. 7400. Issue 2. August. NIOSH. 1994. Asbestos by TEM. 7402. Issue 2. August.	0.1 f/cc TWA-PEL 1.0 f/cc STEL	Incorporate details of a personnel exposure monitoring program into the NMP/ACP. Develop personal air monitoring program. Adhere to PEL, STEL. Develop engineering, administrative controls, and task-based PPE requirements as needed.	Personal air monitoring: Analysis all samples by PCM NIOSH 7400 Analysis by TEM NIOSH 7402 if PCM results exceed the PEL or STEL	- Provide asbestos awareness training in accordance with 29 CFR 1926.1101(k)(9) - Install high-efficiency particulate air (HEPA) filtration system in trailers for workers handling NOA samples - Adjust working hours to expected wind speeds and other exposure factors - Utilize closed cabs with interior filtration systems equipped with HEPA filters or positive pressure units for all construction vehicles and equipment on the Project Controlling dust during all Work activities - Maintain site controls for areas where the additional PPE is required - Notify all personnel working around areas of significant concentrations of NOA - Train affected employees on donning and doffing procedures for PPE - Additional engineering and administrative controls to mitigate NOA exposure are described in 17 CCR 93105 and 17 CCR 93106. - Report exceedances of PEL or STEL to RTC with 24 hours and corrective actions taken

Overview of NOA Mitigation Measures
Boulder City Bypass Project Document Date 15-Sep-14

Item	Associated Activities	Reference	Threshold	Approach	Data Input	Mitigation Measures
Offsite Migration						
Perimeter Air Monitoring Program	All dust generating activities	EPA. 1994. Asbestos Sampling, Standard Operating Procedure #2015, Rev. 0.0. November 17. With project-specific modifications. EPA. 2005. CIO Policy Transmittal 05-002, National Geospatial Data Policy. August 24. ISO. 1995. Ambient Air – Determination of asbestos fibers – Direct-transfer transmission electron microscopy method. ISO 10312:1995(E). ISO. 1999. Ambient Air – Determination of asbestos fibers – Indirect-transfer transmission electron microscopy method. ISO 13794:1999(E). NIOSH. 1994. Manual of Analytical Methods for Asbestos and other Fibers by PCM. 7400. Issue 2. August. With project-specific modifications.	Perimeter air (risk-based): - 0.002 PCME s/cc with attenuation factor applied - May be adjusted based ongoing background ambient air data collection 20% opacity dust tolerance for all activities except blasting at point of dust generation. No visible dust shall leave the Project ROW.	Develop engineering and administration controls to ensure asbestos air concentrations at perimeter monitors do not exceed threshold. Develop perimeter air monitoring program to measure concentrations of airborne asbestos at locations adjacent to the Project ROW: - Establish 2,500 ft Sampling Zones along the Project ROW - Place one perimeter air sample on each side of the Project ROW within each Sampling Zone. Near sample means side closest to community, Far Sample means side furthest away from community - Place perimeter sample near activity where highest dust-generating activities will occur - Characterize the upwind and downwind air flow for the representative air being monitored - Capture representative air flows within ravines and hilltops within each sampling area Installation of RAMs (upwind and downwind) along perimeter of Project ROW Installation of MET stations throughout alignment at select locations where excessive wind conditions are expected to occur	Collect 24-hr perimeter air samples during construction activities - Analysis by PCM NIOSH 7400 with project-specific modifications on all samples - Submit 10% of samples AND any PCM results that exceed threshold for analysis by ISO 10312:1995(e) (13794:1995(E) of overloaded) with project-specific modifications Compare RAM data during construction activities to (pre-construction) background levels. Monitor MET stations for high winds	Mitigation Measures may include but not be limited to: - Adequate watering during all construction activities that disturb rock/soil - Reduce haul traffic speeds as needed - Modify work hours as needed - Employ dust suppression during blasting and crushing - Pre-wet and tarp (cover) loads - Suspend operations during high winds - Stabilize disturbed areas - Incorporate air monitoring program, results, and data interpretation into the Public Information & Outreach Program. Minimize dust during blasting activities by using best management practices as discussed in Performance Specification Section 21.5.3.1 - Notify project team of any threshold exceedances and corrective action taken as per the following sequence: 1st day exceedance: Employ additional dust control 2nd day exceedance: Employ even more dust control 3rd day exceedance: Modify Work practices 4th day exceedance: Stop Work until additional mitigation measures are agreed upon in writing by the Project Team and implemented
Equipment leaving site	Applies to all equipment accessing the site	Not established	NA	Construct equipment washing stations equipped with wheel washing system throughout Project area as needed. Develop equipment washing protocol and inspection checklist.	Visual inspection	- Provide designated parking in areas that are paved or graded with material free from NOA. - Perform equipment inspection prior to de-mobilizing from site - Wash down equipment before moving from the site to paved public road - HEPA vacuum cab interiors - Minimize track-out and wash pavement as necessary - Implement site controls to prevent equipment from leaving the construction area if it has not been washed - Cover equipment water discharge area with material containing < 0.25% NOA or excavate to minimum 6 inches below ground surface and properly placed as discussed in Section 21.6

Overview of NOA Mitigation Measures
Boulder City Bypass Project Document Date 15-Sep-14

Item	Associated Activities	Reference	Threshold	Approach	Data Input	Mitigation Measures
Material Usage						
Embankment fill	Any placement of soil or rock materials excavated as part of the Work, including road construction, disposal of excess material or other embankment construction. Activities include, but are not limited to crushing, loading, trucking, discharging, compacting.	CARB Method 435 ATCM Regulatory Text (17 CCR 93105)	0.25%	Geologist shall lead the effort in identifying and managing NOA material characterization and placement. Develop sampling program in accordance with CARB 435 to test surfacing material with 3-point composite per 1,000 tons.	Reference geological investigations, reports and site conditions for material placed subsurface. Collect samples of all surfacing material to ensure it contains less than 0.25% NOA.	**Material containing < 0.25% NOA:** - May be used as needed in embankment fill surface or subsurface. **Material containing ≥ 0.25 % NOA:** **-** May be used anywhere within the embankment but shall be paved or covered with Surfacing Material containing < 0.25% NOA. All surface material must contain < 0.25% NOA - Soil cover: 3-inch minimum thickness - Gravel mulch - 6-inch minimum thickness
All soil and rock material excavated on site	Drilling, blasting, crushing, separating, loading, trucking, discharging	CARB Method 435 Asbestos ATCM Regulatory Text (17 CCR 93105)	0.25%	All excavated soil and rock material shall be used within the Project limits as embankment fill, spoil, or cover material.	Reference geological investigations, reports and site conditions. Collect data and characterize material to ensure surface material is managed and placed within thresholds.	Stockpile or place material for sampling**.** During drilling, blasting, crushing, excavation, loading, trucking, discharging, compacting, use water, dust suppressants and blasting mats to minimize dust. **Material containing < 0.25% NOA:** - Use as needed **Material containing ≥ 0.25% NOA:** **-** All excavated soil and rock material shall be used within the Project limits - Apply adequate water during hauling and placement - Cover with material with <0.25% NOA (see Embankment Fill) - Any other measure deemed sufficient to prevent visible dust emission during wind speeds of 10 MPH or greater - Suitable rock material may be used to produce aggregate for concrete, asphalt pavements, base course and sub-base materials provided that all other contract requirements are met

Overview of NOA Mitigation Measures
Boulder City Bypass Project Document Date 15-Sep-14

Item	Associated Activities	Reference	Threshold	Approach	Data Input	Mitigation Measures
Exposed cut faces	Drilling, blasting, and excavation	CARB Method 435	NA	Clean rock cut slope surface post-blasting by thoroughly washing with water to remove loose material.	Visual inspection for rock cuts and PLM-PC400 for cut faces in soil.	**Rock Cuts** - Thoroughly wash faces promptly after excavation and scaling **Roadway Cuts with Native Soil/Loose Rock** - Combination of cover with < 0.25% NOA, rock treatments, and/or other suitable stabilizing treatment

ATCM	Asbestos Airborne Toxic Control Measure	NOA	naturally occurring asbestos
CARB	California Air Resources Board	PCM	phase contrast microscopy
CCR	California Code of Regulations	PCME	phase contrast microscopy equivalent
CFR	Code of Federal Regulations	PEL	permissible exposure limit
CIH	Certified Industrial Hygienist	PEMP	Personnel Exposure Monitoring Program
DAQ	Department of Air Quality	PLM-PC400	polarized light microscopy, point count (400) method
f/cc	fibers per cubic centimeter	PPE	personal protective equipment
HEPA	high-efficiency particulate air	RAM	real-time aerosol (dust) monitors
ISO	International Organization for Standardization	ROW	right-of-way
MET	meteorological	s/cc	structures per cubic centimeter
MPH	miles per hour	SAP	sampling and analysis plan
NA	not applicable	STEL	short-term exposure limit
ND	nondetect	TEM-AHERA	transmission electron microscopy, Asbestos Hazard Emergency Response Act counting rules
NIOSH	National Institute for Occupational Safety and Health	TWA	time-weighted average
NMP/ACP	NOA Management Plan/Asbestos Compliance Plan	%	percent

APPENDIX D

PHASE 1

NATURALLY OCCURRING ASBESTOS

SPECIAL PROVISIONS

I-11 BOULDER CITY BYPASS

NDOT SPECIAL PROVISIONS

SECTION 637 – NATURALLY OCCURRING ASBESTOS

SECTION 637 - POLLUTION CONTROL

This Section of the Standard Specifications is hereby deleted and the following substituted therefore:

DESCRIPTION

637.01.01 General. This work consists of the installation, maintenance, and removal of temporary pollution control Best Management Practices (BMPs) intended to provide prevention, control, and abatement of water and air pollution during construction of the project to the maximum extent practicable.

Temporary pollution control and erosion control work shall conform to the requirements of NDOT's "Construction Site Best Management Practices (BMPs) Manual," hereinafter referred to as the Manual, and addenda thereto issued up to, and including, the date of advertisement of the contract. The Manual is available for purchase, or can be accessed on the NDOT website. Adhere to the Manual's minimum requirements found in Section 2 for the selection and implementation of construction site BMPs. Know and fully comply with the provisions of the Manual, and Federal, State, and local regulations governing storm and non-storm water discharges from both the project site and areas of disturbance outside the project limits during construction.

Pursuant to NRS Chapter 625, a Nevada Registered Civil Professional Engineer (PE) shall design and/or review and stamp plans that require engineered calculations. BMPs requiring sizing shall be designed and/or reviewed and approved by a qualified Professional Civil Engineer, registered in the State of Nevada. Refer to Section I.B. of the Stormwater General Permit NVR100000 and the Manual fact sheets for determining when designed BMPs are required.

A Storm Water Pollution Prevention Plan (SWPPP) shall be developed and implemented and documented stormwater inspections shall be performed once every 7 days and within 24 hours of storm events 12.5 mm (0.5 in.) or greater, regardless of Stormwater General Permit NVR100000 procurement.

Temporary pollution control BMPs shall remain in-place until contract work requiring their removal occurs or final stabilization as defined in the Stormwater General Permit NVR100000 is achieved.

637.01.02 Water Pollution Control Manager. Designate a Water Pollution Control Manager who has successfully completed a minimum of 8 hours of stormwater training within the last 3 years. The training shall include stormwater permitting requirements, implementation and inspection of temporary pollution control BMPs, recognition of construction activities that may impact stormwater quality, and identification of illicit discharges or illicit connections to the storm sewer system. Submit training certificates prior to the start of construction activities.

The Water Pollution Control Manager shall be responsible for the preparation of the Stormwater General Permit NVR100000, Temporary Working in Waterways/Discharge Permit, and/or De Minimis Clean Water Discharge Permit applications and their required modifications or amendments. The Water Pollution Control Manager shall be responsible for developing and implementing the SWPPP as specified by the Stormwater General Permit NVR100000 and these specifications. The Water Pollution Control Manager shall be responsible for installing, maintaining, and removing all temporary pollution control BMPs shown on the SWPPP, in accordance with the requirements of the Stormwater General Permit NVR100000, the Manual, and as directed by the Engineer. The Water Pollution Control Manager shall serve as the primary contact for issues related to the SWPPP, permits or their implementation and shall be available 24 hours a day from the first day of activities until final stabilization is achieved for the entire project, or the contract is completed, whichever occurs first. The Water Pollution Control Manager shall be responsible for reporting to the Engineer any illicit discharges (40 CFR § 122.26(b)(2)) or illicit connections to the storm sewer system found within the project limits no later than 24 hours of discovery.

637.01.03 Permits. Not all projects require the permits discussed in this Subsection. See the

Manual for criteria mandating permit procurement. Contact the Nevada Division of Environmental Protection (NDEP), Bureau of Water Pollution Control, a minimum of 7 days prior to the preconstruction conference to procure the appropriate permits. Inform NDEP if equipment will operate in drainages or if dewatering is planned to accomplish the items of work.

(a) Stormwater General Permit NVR100000. Prepare a Storm Water Pollution Prevention Plan (SWPPP) prior to submittal of the Notice of Intent (NOI). File an NOI a minimum of 2 working days prior to commencement of construction with NDEP with appropriate filing fee to obtain coverage under the Stormwater General Permit NVR100000. Include the Engineer's name and NDOT contract number in Section 2 of the NOI. Ensure that the billing information (Section 4 of the NOI) reflects that the Operator (Contractor) is to receive the invoice for annual permit renewal. Ensure that NDOT's Contract Number is referenced in the NOI.

Provide a copy of the NOI Certification Statement prior to beginning work.

Furnish a copy of the initial SWPPP prior to the commencement of any construction activities. The SWPPP will not be reviewed or approved by NDOT or NDEP, but is provided as evidence of SWPPP preparation. The SWPPP shall remain on the project site, updated according to NDEP requirements, as a living document during the project and shall be made immediately available upon request to NDEP, NDOT, FHWA, or government officials inspecting the construction site.

Document existing vegetation in areas that will be disturbed with photographs before commencing ground-disturbing activities. Prior to filing the Notice of Termination with NDEP, photo-document the post construction site conditions to demonstrate the vegetation re-establishment or post project stabilization. Submit electronic or digital color photos for pre and post construction stabilization documentation.

Design and install BMPs such that flooding or ponding is not caused outside of right-of-way or poses a hazard to motorists, pedestrians, or any other user.

Refer to Section II.A. of the Stormwater General Permit NVR100000 for complete SWPPP requirements, and to the Manual fact sheets for individual BMP minimum requirements. Use the SWPPP template found in the Manual or another template acceptable to NDEP. Refer to the NDEP website http://ndep.nv.gov/bwpc/storm01.htm for a copy of the Stormwater General Permit NVR100000 and information pertaining to SWPPP development.

Stormwater General Permit NVR100000 covers storm water discharges from Department-furnished material sources for general fill material, aggregate and/or staging a temporary asphalt or concrete batch plant operation dedicated solely to this contract. Address temporary pollution control BMPs for these areas in the SWPPP.

(b) Temporary Working in Waterways/Discharge Permit. This permit is required whenever construction is performed within, or in the vicinity of, "Waters of the State" (NAC 445A.415) and/or whenever 401 Water Quality Certification is required. Said work is intended to provide prevention and control of pollutants and sediment transport downstream by employing BMPs.

Prior to commencing work below the ordinary high water mark of a "Waters of the State," submit to the NDEP Bureau of Water Pollution Control, Permits Branch, the required permit application for a Temporary Working in Waterways/Discharge Permit to be issued to the Contractor. The review and approval process may take up to four weeks. If a change is proposed to the information contained in the approved permit application, contact NDEP for their approval. Changes shall not be made in the field until receiving NDEP approval.

(c) Temporary Discharge Permit. If a Temporary Working in Waterways/Discharge Permit is not required for a project including dewatering operations, a Temporary Discharge Permit may be necessary. Review Manual fact sheet NS-2 of Section 6 for specific requirements.

(d) De Minimis General Permit NVG201000. This permit authorizes specific intermittent or continuous discharges into a "Waters of the U.S." (33 CFR § 328). Refer to the permit for discharge specific NOI sampling requirements, discharge limitations, monitoring requirements, and conditions. Submit a signed copy of the NOI Certification Statement.

637.01.04 Noxious Weed Management. Develop and follow a Noxious Weed Management Plan to prevent the establishment and spread of Nevada State listed noxious weeds per NRS 555 (available at http://agri.nv.gov/PLANT_NoxWeeds_index.htm). The plan shall include mapping of existing noxious weed populations, appropriate eradication/control methods based on weed type, location, applicator certification, monitoring, and retreatment as necessary. Include methods for keeping equipment, personnel, staging areas, construction and excavation sites, and roadways clear of noxious weed plants and seeds. Equipment leaving noxious weed infested areas shall be cleaned prior to moving to another location. Equipment coming into or leaving the project area shall be cleaned and the cleaning area kept clear of plant material and contaminated dirt to prevent weed spread. The plan shall also address the treatment of weeds in topsoil salvage material. Submit the plan at the pre-construction meeting.

CONSTRUCTION

637.03.01 General. On any project requiring 401 Water Quality Certification, submit digital or electronic color photographs with associated description of sediment and erosion structural controls and BMPs within two weeks of their installation.

Be responsible throughout the duration of the project for installing, constructing, inspecting, maintaining, replacing, removing, and disposing of the BMPs specified in the SWPPP, Temporary Working in Waterways Permits, and any other applicable permit. Install BMPs at the earliest practicable time for each construction phase. Sediment removed during maintenance of BMP's can generally be incorporated within the project limits and in compliance with SECTION 4 – MATERIAL USAGE of the NOA Management Plan (NMP).

Repairs and/or placement of temporary pollution control BMPs shall begin within 24 hours of notification of a deficiency and shall be completed within 7 days. Should this restriction be exceeded, work may be immediately suspended and no other items of work shall be performed until the repairs are completed. Working days will continue to be assessed during the suspension period and partial payments as set forth under Subsection 109.06 may not be forthcoming until said repairs are completed.

Do not remove BMPs until the disturbed area being protected achieves final stabilization as defined by Stormwater General Permit NVR100000. This may require BMPs be left in-place following the completion of construction activities. Properly maintain such BMPs, specified in the Manual, until the project is accepted.

Submit a copy of the most updated SWPPP upon contract completion.

File a separate NOI with NDEP to apply for coverage under the Stormwater General Permit NVR100000 for ground disturbance areas outside of NDOT Right-of-Way and not displayed in the plans. Contractor furnished material sources, staging areas, plant sites, turnaround areas, or any other contractor caused ground disturbance outside the right-of-way and not shown in the plans are the Contractor's responsibility and shall be submitted under a different NOI package from the ground disturbance within right-of-way and shown on the plan sheet details. As these separate Stormwater General Permits are the sole responsibility of the Contractor, NDOT shall not be listed as an Owner or Operator. Provide a copy of all separate signed NOI certification statements. The Department is not responsible for delays caused by incomplete or inaccurate submittals to NDEP by the Contractor.

The Contractor is solely liable for any suspension of work due to regulatory agency, e.g. NDEP, enforcement actions resulting from permit, e.g. Stormwater General Permit NVR100000, non-compliance.

Land disturbance areas beyond those depicted in the contract documents resulting from Contractor construction activities shall undergo final stabilization at the Contractor's expense. These include, but are not limited to, unidentified staging areas, turnaround areas, employee parking areas, and areas of ingress and egress. Submit final stabilization plans for Departmental review and approval.

637.03.02 Dust Control. Develop, obtain, and pay for all State and local entity permits and fully comply with the terms specified therein. Furnish and apply water or chemical dust palliative for controlling dust on the areas designated and according to permit conditions. Use equipment and obtain water as specified in Subsection 107.21.

Control dust originating from traffic, plant, or construction operations either inside or outside the right of way at all times according to Federal, State, and local laws, ordinances, and regulations.

Use dust palliatives listed in the QPL. Consult the Manual fact sheets for appropriate product selection.

Mix and apply dust palliative as recommended by the manufacturer. Prepare the soil for application of dust palliative according to manufacturer instructions. Apply additional applications of dust palliative to control dust or as required by air quality regulating authorities.

Maintain all disturbed areas in a condition to prevent wind erosion and particulate emissions 24 hours a day, 7 days a week until the construction site is completely stabilized as shown on the plans and as required.

For contracts in Clark County, provide a copy of the Clark County Department of Air Quality Management "Dust Control Permit" for construction activity prior to beginning work. Provide a copy of the final inspection and release from the Clark County Department of Air Quality Management "Dust Control Permit" upon completion of construction activities.

Immediate notification will be given in writing for failure to maintain adequate dust control and may result in immediate suspension of construction operations. If failing to remedy unsatisfactory dust control within 1 hour after receipt of such notice, the Engineer may immediately proceed to take necessary action to maintain dust control and the entire cost of this maintenance will be deducted from money due or to become due.

637.03.03 Naturally Occurring Asbestos. This work consists of managing and mitigating Naturally Occurring Asbestos (NOA) during the performance of work.

The site investigation described below indicates that the concentration of NOA found in the rock and soil sampled does not exceed 0.25%, as analyzed by California Air Resources Board (CARB) Test Method 435.

NOA concentration data and sample location maps included in the following report are herein incorporated by reference and made a part of this contract:

> Tetra Tech, Inc. 2014. Site Characterization Report For Boulder City Bypass Naturally Occurring Asbestos (NOA) Project Phase 1 (Railroad Pass To Silverline Road) August 2014.

The maps and data can be found at the following site:

ftp://ftp.nevadadot.com/Public/3579and3580/

These maps and data help to generally characterize NOA in the Project area, but do not provide absolute concentrations of NOA in soil and rock. The contractor and/or its representatives shall be responsible for confirming NOA soil concentrations associated with the work. NOA is believed to be

present in soil throughout the Project area, but in some cases at levels below the detection limits of the CARB Test Method 435. Material may also be encountered with NOA concentrations at or above 0.25%. All material shall be managed in accordance with SECTION 4 – MATERIAL USAGE.

NOA is released, or has the potential to be released, when construction activities or natural processes (e.g., wind) disturb soil and rock. In addition to releasing NOA, these construction activities or natural processes also generate dust which may include NOA. Dust generating activities anticipated during construction include but are not limited to:

a) General soil and land disturbances.
b) Clearing and grubbing.
c) Cutting and filling.
d) Dumping and backfilling.
e) Drilling and blasting.
f) Crushing.
g) Importing and exporting soil and rock.
h) Paving and subgrade preparation.
i) Screening.
j) Stockpiling.
k) General truck and vehicle operations.
l) Truck loading and transport.
m) Insufficient watering or soil stabilization.

SECTION 1 - APPLICABLE STANDARDS

1.0 Introduction. Comply with the standards listed below to control and monitor the release of dust and NOA into the air during the execution of work.

Use the most current version of each listed standards as of the Advertise Date. In the case of conflicting requirements between the listed standards, the more stringent requirement shall apply.

General exceptions to the Asbestos Airborne Toxic Control Measure (ATCM) standards are as follows:

a) Clark County Department of Air Quality (DAQ) will replace the California Air Pollution Control Officer (APCO) as the authority in 17 CCR §93105.
b) The exemptions provided for in the ATCM standards will not be allowed.

General exceptions to the analytical procedures described in the California Air Resources Board (CARB) 435 standards are as follows:

a) Apply the sampling and analytical procedures described in CARB 435 to the characterization of all on-site and off-site materials regardless of the references to serpentine aggregate.
b) The Department will replace the California APCO and the Executive Officer as the authority described in CARB 435.

1.1 Standards. Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations. 17 CCR §93105.

California Air Resources Board (CARB). 1991. Determination of Asbestos Content of Serpentine Aggregate. Method 435.

Clark County DAQ. 2003. Construction Activities Dust Control Handbook. March.

Clark County DAQ. 2004. Section 94 Permitting and Dust Control for Construction Activities.

U.S. Environmental Protection Agency (EPA). 1994. Asbestos Sampling, Standard Operating Procedure #2015, Rev. 0.0. November 17.

EPA. 2002. EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5. Final. December.

EPA. 2005a. EPA Uniform Federal Policy for Quality Assurance Plans. EPA-505-F-03-001. March.

EPA. 2005b. CIO Policy Transmittal 05-002, *National Geospatial Data Policy*. August 24. [http://www.epa.gov/irmpoli8/policies/21310.pdf].

International Organization for Standardization (ISO). 1995. Ambient Air – Determination of asbestos fibers – Direct-transfer transmission electron microscopy method. ISO 10312:1995(E).

ISO. 1999. Ambient Air – Determination of asbestos fibers – Indirect-transfer transmission electron microscopy method. ISO 13794:1999(E).

National Institute for Occupational Safety and Health (NIOSH). 1994a Manual of Analytical Methods for Asbestos and other Fibers by PCM. 7400. Issue 2. August.

NIOSH. 1994b. Asbestos by TEM. 7402. Issue 2. August.

OSHA 29 Code of Federal Regulations (CFR) §1926.1011.

OSHA. 1995. Sampling and Analysis – Non-mandatory, Title 29 CFR §1926.1101, Appendix B, June.

1.2 NOA and Concurrent Work. The utility companies, their contractors and the Department consultants will be conducting concurrent work as described in Section 107 and 108. Provide the following work in support of the Project as it relates to NOA and the concurrent work:

a) Obtain a DAQ Dust Control Permit that includes all work within the construction limits including the work by the utility companies, their contractors and the Department consultants as described in the referenced sections and associated utility plans. The utility companies their contractors and the Department's consultants will be required to comply with DAQ Dust Control Handbook requirements and the terms and conditions of the DAQ Permit that will apply to the work they perform.
b) Coordinate with the utility companies and their contractors and the Department's consultants and provide the dust control necessary to meet the contract and Permit requirements.
c) Provide dust control for all Work performed in support of the utility companies described in Section 107 and their contractors such as removals, excavation and backfill.
d) Provide dust control for all access roads and the work areas adjacent to the work performed by each utility company their contractors and the Department's consultants.
e) Maintain dust control or stabilize all disturbed areas including those areas disturbed by the utility companies, their contractors or the Department's consultants excluding fenced staging areas designated for these entities.
f) Perform perimeter air monitoring and dust control monitoring in support of the work performed by the utility companies, their contractors and the Department's consultants.
g) Provide the site ingress and egress facilities described in this section for use by all workers and visitors including the utility companies, their contractors and the Department consultants.

h) Provide access to electronic copies of the NMP for the utility companies, their contractors and the Department consultants prior to the Pre-Construction Conference. Provide similar access to NMP updates.
i) Provide real time access to all NOA data collected and maintained on-site and copies of all reports described in this section to the utility companies, their contractors and the Department consultants.
j) Update the Department, utility companies, their contractors and the Department consultants daily regarding the current site controls, protective measures implemented, changes to daily operations, regulated areas and planned activity.
k) Notify the Engineer immediately when NOA exceedances occur or violations to dust requirements are identified due to the work performed by any utility company, its contractors or the Department consultants. The Engineer will notify the party and take the necessary action.

1.3 Required Personnel. Provide the following personnel during the execution of the work as described below. Submit the resumes and qualifications for personnel who shall have the minimum qualifications and experience specified below and obtain approval prior to beginning work:

a) A Certified Industrial Hygienist (CIH), certified by the American Board of Industrial Hygiene with a minimum 3 years of experience working with NOA or commercially-processed asbestos.

b) An Asbestos Competent Person (ACP), as defined in 29 CFR §1926.1101 (b), shall be on site when NOA mitigation measures are being implemented and at all times when dust generating activities are taking place. Provide a sufficient number of ACPs to properly manage and supervise the Project. The ACP shall be an employee of the Contractor, under the direct supervision of the Superintendent, and dedicated solely to the contract.

   The ACP shall be available to be contacted by the Engineer 24 hours a day for the life of this contract and shall be capable of being on site within 45 minutes of notification. The ACP shall conduct a minimum number of inspections of the Project including each sampling zone and work activity each day as follows:

   i. Before beginning work.
   ii. At the start of any new work activity
   iii. At mid-shift.
   iv. Half an hour after the end of the shift.
   v. A minimum of once during the period of non-working hours. The time between inspections shall not exceed 12 hours.

   The ACP shall develop a "Dust & NOA Control Checklist Form" in cooperation with the DAQ and the Engineer and make a record of each inspection using the form. Each review shall include ACP activities, the time the ACP reviewed the work activities and each sampling zone, any actions taken, and any other pertinent information. Submit completed forms within 24 hours.

c) A Dust Control Monitor, as defined in Clark County Air Regulations, Section 94 (DAQ 2004), shall be on site at all times during work that and shall devote the majority of their time to managing dust prevention and control. Provide sufficient number of Dust Control Monitors to monitor all simultaneous work.
d) A Geologist meeting the requirements of Nevada Revised Statutes (NRS) 514.005 with field mapping experience, which includes 3 years of experience with NOA.

e) A Nevada certified environmental manager (CEM), as defined in NRS 459.485, 459.500) and Nevada Administrative Code (NAC) 459.9704. "Environmental manager" means a natural person who is certified by the Division pursuant to NAC 459.972 or 459.9724.

1.4 NOA Management Plan. Prepare and submit the NOA Management Plan (NMP) for acceptance. The NMP shall describe the managerial approach, strategy, characterization, and quality procedures to achieve all of the requirements for the mitigation of NOA. The NMP shall include details of the mitigation measures, engineering controls, sampling and analyses, and the monitoring and response protocol. It shall include all actions planned as part of the work, to protect workers, visitors, and the public from potential exposure to NOA due to dust generating activities. The NMP shall include any required Clark County DAQ permit approvals and conditions. Work performed by utility companies, their contractors and the Department consultants will be accomplished under the Contractor's DAQ dust control permit. The Department will require that the utility companies and other contractors working within the project limits adhere to the NMP for site access procedures and mitigate dust for the work they perform within the utility corridor or other areas as defined in Section 107.

Submit 3 copies of the NMP for review and obtain acceptance of the NMP before dust-generating activities commence. If revisions are required, resubmit the NMP within 5 working days of receipt of the Engineer's comments. Upon authorization of the NMP, submit 3 additional copies.

Update the NMP quarterly and as change is required throughout the duration of the Project. Such changes may arise as work progresses and sample results are reviewed and analyzed and as adjustments are made to respond to exceedances or to address changes in the volume of dust generating activities, soil conditions, weather, and any other dust mitigating factors encountered during the work. Submit updates for review and acceptance.

The elements of the NMP shall include, but not be limited to, the following:

a) Personnel exposure monitoring, as specified in Section 2.2, for compliance with OSHA 29 CFR §1926.1101, including discussion on the specific roles of the CIH and ACP and how the OSHA standard will be applied to a roadway construction project. Include details on how and when initial exposure assessments will be performed for each type of activity. Include details on the methods that will be used to address project areas with overlapping activities that may change from day-to-day.
b) Protection of personnel who are on site, including workers, the Department, utility companies, their contractors, the Department consultants, visitors and the public from exposure to NOA.

c) Discussion on the specific elements of the plan to be followed by all workers and visitors accessing the Project including utility companies and Department consultants performing concurrent work.

d) Sampling and Analysis Plan (SAP), as specified in Section 1.5, that describes monitoring locations and methods, sampling techniques, roles and responsibilities, and analytical methods for personal air, perimeter air, and material usage characterization.
e) Measures to prevent migration of NOA outside the right-of-way due to dust generating activities.
f) Measures to prevent migration of NOA by wind dispersion, stormwater dispersion, vehicles leaving the right-of-way, or any other activity associated with the work.
g) Monitoring and site controls to verify that NOA is not migrating beyond the right-of-way.
h) Discussion on how analytical results will be correlated to construction activities.
i) Describe the process that will be followed to assess the results of perimeter air monitoring and evaluate potential causes of exceedances, number of consecutive exceedances, and the changes or added mitigation measures that will be made to lead to compliance if exceedances of the threshold occur.

j) Process describing how sampling and analytical results will be used to make decisions to adjust mitigation measures, engineering controls, and dust-generating activities during execution of the work.
k) Integration of Clark County DAQ dust control requirements and discussion on the role of the Dust Control Monitor.
l) Material excavation, transport, and placement procedures, as specified in Section 4.4, for stockpiling, storage, transport, and management of material containing NOA.
m) An Asbestos Dust Mitigation Plan (Dust Mitigation Plan) meeting Clark County DAQ requirements as specified in Section 3.7.
n) Description of NOA material placement and use, including a description of how onsite materials will be characterized, used, and the final placement documented.
o) Discussion on the role of the Geologist in the identification and field-mapping of NOA, characterizing and interpreting rock units, and coordinating the stockpiling, transport, and placement of materials containing NOA.
p) Blasting and crushing operation procedures that will be utilized to control the release of NOA, including the drilling for blasting and crushing and processing of soil and rock.
q) Site control procedures, including placement of signage at all access points indicating presence of NOA and establishing parking facilities and decontamination methods for haul trucks and other vehicles exiting the Project
r) Describe method and procedures for appropriate on and off-site disposal of all potentially contaminated items including PPE including potentially contaminated items and PPE from utility companies, their contractors, Department employees and consultants, and Department-invited and Department-related personnel visiting the Project. Dispose of in accordance with best management practices and all federal, state, and local regulations.
s) Communication plan for the daily coordination of NOA information with workers and visitors of the site including regulated areas and dust generating activities.

Plan, manage, schedule, and execute the work in accordance with the measures described in the NMP and the requirements of the contract. Adjust work methods and operations, as necessary, to ensure NOA air concentrations are below the thresholds established by the contract. A copy of the most up-to-date, approved NMP shall be available onsite at all times.

The NMP and all subsequent updates shall be prepared and signed by the CIH. Oversight of the implementation of the NMP will be conducted by the ACP working under the supervision of the CIH. The Dust Control Monitors shall monitor all dust generating activities and take appropriate measures if any activities create visible dust in excess of the requirements in Section 3.7.

1.5 Sampling and Analysis Plan and Laboratory Services. Develop a project SAP that details all necessary field sampling components, including data quality objectives (DQOs), standard operating procedures (SOPs), sample locations, and analytical methods. The SAP shall be developed in accordance with the requirements of the *Uniform Federal Policy for Quality Assurance Plans (UFP-QAPP)* (EPA 2005a) and *EPA Guidance for Quality Assurance Project Plans* (EPA 2002).

The SAP shall include details (e.g., DQOs, sample design and rationale, analytical methods, sampling procedures) on the following sampling activities:

a) Personal air monitoring, as specified in Section 2.2.
b) Perimeter air monitoring, as specified in Section 3.1.
c) Material sampling, as specified in Section 4.1.

Provide an onsite laboratory to produce analytical results for personal air and perimeter air results. Laboratories performing analysis of airborne asbestos by TEM shall be accredited by the National Institute of Standards and Technology (NIST)/National Voluntary Laboratory Accreditation Program (NVLAP). This includes the analysis of NIST/NVLAP standard reference materials, or other verified quantitative standards, and successful participation in two proficiency rounds per year for

airborne asbestos by TEM supplied by NIST/ NVLAP. Laboratories performing PCM analysis shall participate and be accredited in a National sample testing program, such as the Proficiency Analytical Testing Program (PAT) or the Asbestos Registry sponsored by the American Industrial Hygiene Association (AIHA). The laboratory shall be equipped and staffed to meet perimeter air analytical turnaround time requirements in Section 3.4 for all samples collected daily.

Procure, place and set up the onsite laboratory. Place on stable, flat ground in a secure area near or within the primary ingress and egress site. Laboratory dimensions shall be a minimum of 8 feet wide x 32 feet long. Equip the lab to prevent airborne asbestos or mold contamination. Include lavatory facilities, water, telephone and electrical service for the duration of the Project.

Upon request, perform analysis of perimeter and personal air samples collected by the Department's NOA consultant for independent quality assurance purposes (see Section 3.4). The Department will request analyses for an average of four (4) perimeter air samples and four (4) personal air samples per week.

Provide laboratory services for soil and rock sample analysis. The laboratory shall meet the reporting requirements in Section 4 for placement of material. Laboratories performing polarized light microscopy (PLM) analysis shall be accredited by NIST/NVLAP..

1.6 Data Management. Develop and maintain a database for all NOA, dust and site condition related data (including PCM, TEM, PLM, MET, RAM and field data) collected as part of the Project. Utilize the forms provided in Section 7 and additional forms to document data collection. Provide copies of documentation upon request.

Design the database to capture the raw structure data associated with any transmission electron microscopy (TEM) analysis (e.g., structure dimensions, mineral types), in addition to information on structure counts and concentration estimates. Perform queries and generate daily/monthly reports to report perimeter air data, personal air data, rock/soil sample data, meteorological data, and any other data produced. The minimum data reporting requirements for asbestos shall be met for all TEM, phase contrast microscopy (PCM) and PLM data and shall be recorded using National Asbestos Data Entry Spreadsheets (NADES) or an acceptable equivalent spreadsheet format. NADES files for PCM and TEM are available for download at http://www.epaosc.org/site/doc_list.aspx?site_id=4525.

Electronically import or populate the database with NOA data collected by the Department consultants for Department personnel, the utility companies and their contractors and with data collected for quality assurance purposes. Update the database within 24 hours of data collection and/or the receipt of analytical results. Provide real-time access to the Department and third parties identified by the Department.

SECTION 2 - PERSONNEL EXPOSURE MONITORING PLAN

2.0 Introduction. As part of the NMP, develop a Personnel Exposure Monitoring Plan (PEMP) that describes the approach for protecting employees, subcontractors, contractor-invited and contractor-related personnel visiting the Project from the hazards associated with NOA. The PEMP shall include procedures describing how the contractor will advise them that NOA was detected in rock/soil samples collected within the project limits.

Coordinate with the Department and Nevada OSHA for periodic consultation visits throughout the duration of the Project to maintain a safe working environment and ensure all parties are working together to achieve safety goals.

Describe the appropriate measures for protecting personnel from NOA exposure during all phases of work. Include details on how the OSHA standard will be applied to an outdoor roadway construction project and how initial exposure assessments will be conducted to capture representative samples for overlapping construction activity and work areas as conditions change throughout the

duration of the Project. Protective measures shall include all work practices, engineering controls, and personal protective equipment (PPE) required by 29 CFR §1926.1101. The hierarchy of controls shall be employed in the following order:

a) Engineering controls.
b) Work practice controls.
c) PPE.

Use PPE only when other more preferred means of control are not feasible or in conjunction with other controls. Store and properly dispose of all spent PPE for everyone accessing the Project in accordance with local regulations. Spent PPE may include, but not be limited to, disposable coveralls, respirator cartridges, poly sheeting, duct tape, and disposal gloves.

Inform employees, subcontractors, contractor-invited, and contractor-related personnel visiting the Project of the protective measures implemented. Provide appropriate PPE, qualitative fit testing, and training where respiratory protection is required to employees, subcontractors, contractor-invited, and contractor-related personnel. Any personnel wearing respirators shall have appropriate medical surveillance as described in 29 CFR §1926.1101(m).

Inform the Department's employees and consultants, utility companies and utility contractors and Department-invited personnel visiting the Project of the protective measures implemented by the contractor as they arrive on site each day and through daily email notifications and printed updates. Post the information on the project bulletin boards and at each ingress point of access.

Clearly identify and outline on a project aerial map all Regulated Areas as defined in 29 CFR 1926.1101(e) where respirators and additional personal protective measures are required corresponding to each field demarcated zone and post at a location acceptable to the Engineer. Provide daily notification to the Engineer of ongoing protective measures and requirements and update the Regulated Areas Map on a daily basis and as requirements for protective measures change.

The Department's employees and consultants, utility companies and utility contractors and Department-invited personnel visiting the Project will obtain the appropriate PPE, qualitative fit testing, and training where respiratory protection is required and appropriate medical surveillance as required.

Plan, manage, schedule, and execute the work in accordance with the measures described in the PEMP and the requirements of the contract. Update the PEMP as work progresses and sample results are reviewed and analyzed. Adjust work methods and operations as necessary to control the release of NOA, therefore reducing the potential exposure of personnel.

2.1 Engineering and Administrative Controls. Take measures to mitigate NOA exposure during all phases of work by preventing/minimizing the generation of dust so that: 1) personal air monitoring results do not exceed OSHA's established permissible exposure limit (PEL) for time-weighted average (TWA) or short-term exposure limit (STEL) for asbestos and 2) NOA does not migrate off-site. Measures include, but are not limited to:

a) Installing high-efficiency particulate air (HEPA) filtration system in trailers for employees and subcontractors handling NOA samples.
b) Adjusting working hours based on expected wind speeds and other exposure factors.
c) Utilizing closed cabs with interior filtration systems equipped with HEPA filters or positive-pressure units for all construction vehicles and equipment on the Project.
d) Controlling dust during all dust generating activities.
e) Notifying the Engineer immediately if any NDOT contractors or utility companies generate dust that results in violations to DAQ permitting requirements or that has the potential to exceed the NOA threshold for perimeter air.

In the event personal air monitoring results exceed the PEL or STEL, re-evaluate work practices and engineering and administrative controls, provide appropriate respiratory protection and hygiene facilities as required under 29 CFR §1926.1101.

2.2 Personal Air Monitoring. Develop a personal air sampling and monitoring program that satisfies all requirements in 29 CFR §1926.1101(f). Personal air samples shall be collected in accordance with OSHA Standard 29 CFR §1926.1101, Sampling and Analysis – Non-mandatory, Appendix B.

Include details of the personal air sampling and monitoring program as part of the SAP as described in Section 1.5. Include details of the sample design and rationale, DQOs, sampling methods, analytical procedures, and other requirements. All personal air samples shall be analyzed by PCM in accordance with NIOSH Test Method 7400 (NIOSH 1994a). If PCM results are above the respective PEL or STEL defined in 29 CFR §1926.1101, the sample shall be analyzed by TEM in accordance with NIOSH Test Method 7402 (NIOSH 1994b) to determine the airborne asbestos concentration to which the person was exposed.

As part of the initial exposure assessment, perform and document all tasks required and associated mitigation measures employed to complete the work in each designated area. For each task, collect a minimum of 3 days of personal air monitoring on 10% of employees performing the task (minimum of 2). The results of the personal air monitoring shall be compared to the OSHA PEL and STEL. For each task, all work shall be performed in level C PPE until personal air monitoring results confirm that exposure levels are below the PEL and STEL. Once the initial exposure assessment is complete, continue to perform periodic (weekly) monitoring on 10% (minimum of 2) of employees per task throughout the duration of the work regardless. Upon completion of each initial exposure assessment, provide documentation to support the level of applied mitigation measures.

Properly dispose at an offsite disposal facility of all potentially contaminated items including PPE used during the execution of the Work, including potentially contaminated items and PPE from Department employees, contractors, utility companies and their contractors, and Department-invited personnel visiting the Project. Dispose of in accordance with best management practices and all federal, state, and local regulations. Provide disposal facilities at each ingress and egress site as described in Section 3.9.

Notify the Department a minimum of 5 days in advance of each initial exposure assessment. Allow Department and its consultant to participate in each assessment activity to independently collect samples and to assess the application of mitigation measures. Accommodate the Department and its support staff in conducting independent quality assurance (QA) sampling at any time for the duration of the Project. When parent and QA sample results differ, the Contractor shall use the sample with the highest result (most conservative) for decision making.

Adjust work methods and operations as necessary to ensure NOA concentrations are below the OSHA PEL and STEL.

2.3 Asbestos Awareness Training, Respirator, and Dust Control Class. Develop and provide NOA awareness training for all employees, subcontractors, contractor-invited, and contractor-related personnel accessing the Project and maintain documentation and training participant records in accordance with 29 CFR §1926.1101(k)(9) throughout the duration of the Project. Include details of how the asbestos awareness training will be provided in the PEMP. Develop and conduct the asbestos awareness training in accordance with 29 CFR §1926.1101(k)(9). The training shall include a minimum of 2 hours of course material. Update the course material and conduct annual training that includes new data, such as perimeter air, soil/rock, and personal air monitoring data. Provide a list of participants who have completed the training on a monthly basis and include a compiled list in the NOA Post-Construction Report as described in Section 4.7.

Provide training and certification of completion for all employees, subcontractors, contractor-invited, and contractor-related personnel accessing the Project on the selection, protection factor, fit testing, maintenance, cleaning, models, and use of respirators in accordance with 29 CFR §1926.1101(h). Documentation of respirator training shall be completed as described above for asbestos awareness training. Include training on safety precautions and procedures for site access and field visits.

Provide hard hat stickers and laminated card(s) to all workers and visitors who provide proof of completion of the above described asbestos awareness training and respirator training. Cards must be displayed upon request for site access and must be carried on the Project at all times.

Provide copies of the NOA awareness training materials after each update and upon request

Asbestos awareness training for the Department's employees, contractors, utility companies and their contractors, Department-invited and Department-related personnel visiting the site will be provided by the Department.

All employees and subcontractors shall complete the DAQ and Environmental Management Dust Control Class, as described in DAQ Section 94.7.6 of the Air Quality Regulations. The class will be taught by DAQ and will include NOA-specific information.

2.4 Reporting. Provide all calculated TWA and STEL personal air monitoring results to employees and the Engineer as soon as available but no later than 5 days of receiving laboratory results. In addition, provide monthly summaries of personal air monitoring results for review and discussion at progress meetings. Report each exceedance of the PEL or STEL within 24 hours, along with a description of the appropriate corrective actions taken and confirmation that samples will be reanalyzed by TEM.

SECTION 3 - OFFSITE MIGRATION

3.0 Introduction. NOA may become airborne during dust generating activities. Take measures to prevent dust and NOA from becoming airborne and migrating offsite.

Sample and measure the air quality using the following methods:

a) Perimeter air monitoring.
b) Real-time dust particulate monitoring.
c) Visual observations.

3.1 Perimeter Air. Use methods and mitigation measures to maintain perimeter air sampling results below the threshold of 0.002 structures per cubic centimeter (s/cc) (expressed in terms of PCM-equivalent [PCME] structures).

Collect daily perimeter air samples and use the results to evaluate the efficacy of NOA mitigation measures employed in the execution of work.

3.2 Perimeter Air Monitoring Plan. Develop a perimeter air monitoring plan to collect and evaluate perimeter air samples to determine the effectiveness of work practices and engineering controls to minimize the offsite migration of airborne NOA. Develop the overall perimeter air sampling approach in accordance with EPA SOP #2015, *Asbestos Sampling* (EPA 1994), with modifications as described in Section 6. Include details of the sample design and rationale, DQOs, sampling methods, analytical procedures for the perimeter air sampling and monitoring in the SAP as discussed in Section 1.5.

Monitor the right-of-way for NOA through the collection of perimeter air samples along the right-of-way boundary. Identify and coordinate the placement of perimeter air monitoring devices along the right-of-way in cooperation with the Engineer following the criteria listed below:

a) Establish six Sampling Zones within the right-of-way to represent sub-areas of the Project at approximately 2,500-foot spacing. Each Sampling Zone shall be represented by one Near Sample station and one Far Sample station. Near Sample means the side of the right-of-way closest to a residential community (or receptor). Far Sample means the side of the furthest from a residential community (or receptor).
b) All perimeter air samples shall be collected over a 24-hour timeframe.
c) Prior to the collection of each sample, move the Near Sample and Far Sample stations within the Sampling Zone nearest to the construction activity that has the highest potential for creating dust. Once the sampling has started, the sample station shall not be moved until the 24-hour timeframe has expired.
d) Characterize the upwind and downwind air flow for the representative air being monitored (e.g., each side of the right-of-way).
e) Capture representative air flows within ravines and hilltops within each sampling area.
f) At a minimum, perimeter air samples shall be collected when construction or other dust-generating activities are taking place within the Sampling Zone. Once sampling has started within a Sampling Zone, daily samples shall be collected until construction activities are complete within the Sampling Zone. The contractor may collect samples within the Sampling Zone, even if no construction activities are taking place, in order to collect data for project-wide comparison. Reassess the location of the Sample stations and adjust in cooperation with the Engineer and DAQ staff on a monthly basis and as changes in the work or visible dust within each Sampling Zone occur. Change the location of sampling stations to ensure that data collection is representative of construction activities occurring within each Sampling Zone.

Perimeter air monitoring station shall include the following equipment:

a) Perimeter Air Sampling Equipment:

    i. Air sampling pump capable of pumping between 1 and 5 liters per minute (L/min) for a minimum of 30 hours.
    ii. Second battery for each pump and battery charging station.
    iii. Rotameter capable of measuring between 0.5 and 10 L/min.
    iv. Piston style dry primary calibrator to calibrate rotameter.
    v. 25 millimeter mixed cellulose ester (MCE) asbestos PCM & TEM cassettes.
    vi. 7-foot length plastic tubing (0.25-inch inner diameter).
    vii. Sample labels for MCE cassettes and zipper-top bags.
    viii. Plastic zipper-top bags for MCE sample cassettes.
    ix. T-bar fence posts to suspend MCE sample cassettes.
    x. Equipment to Protect Air Sampling Equipment.
    xi. Hard plastic case to protect pump from the sun during hot conditions.

b) Spare equipment in case of breakage or malfunction:

    i. Three sets of spare pumps and batteries.
    ii. One rotameter.

The perimeter air monitoring stations shall be in place, tested, and operational prior to the commencement of potential dust-generating activity within each Sampling Zone. Record the locations of sampling locations using Global Positioning System (GPS) equipment and the dates and times of the initial placement and whenever location adjustments occur. GPS points shall be collected using Trimble® GPS handheld units, or equivalent equipment that meets the EPA's accuracy standards for geospatial data (EPA 2005b) and included in the NOA database.

Accommodate the Department, its consultants and regulatory agenices in conducting independent NOA air sampling at any time for the duration of the Project.

Dust or other suspended particulates in air may clog or overload the sample filter and reduce the ability to observe and characterize asbestos fibers on the filter. Sampling personnel shall adjust sample flow rates (e.g., lower flow rate) to avoid filter overloading as determined by the laboratory (see Section 6 for the range of acceptable flow rates).

3.3 Perimeter Air Analysis. Analyze perimeter air samples by PCM in accordance with NIOSH Method 7400, Issue 2 (NIOSH 1994), with the modifications as described in Section 6. Any perimeter air monitoring sample result that exceeds 0.00067 PCME s/cc shall be sent for analysis by TEM-ISO following the same analytical procedures as specified in Section 6. In addition, randomly select ten percent of the daily perimeter air monitoring samples to be analyzed in accordance with TEM ISO, with modifications as described in Section 6.

Install real-time dust (aerosol) particulate monitors (RAMs) along the perimeter of the right-of-way to measure airborne dust particulates for all dust generating activity. Identify potential locations and coordinate the exact placement of RAMs along the right-of-way with the Engineer and the DAQ. Place RAMs near each perimeter air monitor as described in Section 3.2, near construction activities that create the most dust and in areas nearest to residential communities and where recreational activities may occur.

The RAM shall be capable of measuring dust levels in air in units of micrograms of dust per cubic meter of air ($\mu g/m^3$). The RAM shall be portable and able to withstand the temperature extremes that exist at the site and exposure to construction activities. The RAMs shall:

a) Measure dust levels at 1 $\mu g/m^3$ to 400,000 $\mu g/m^3$.
b) Operate for up to 30 continuous hours.
c) Mount on a tripod, or similar device, and measure dust concentrations in air at the same height as the perimeter air sample cassettes.
d) Measure and record dust levels every 5 minutes during dust generating activities.

The Dust Control Monitor shall record information on activities that generate dust and describe dust levels throughout each day. Use recorded information to evaluate RAM measurements to determine if dust generated from work activities is measureable at the right-of-way. Record the following including location and time of day:

a) Characterize and record upwind and downwind air flow for the representative air being monitored.
b) Dust clouds that could exceed the dust permit limits.
c) Dust from construction activities or unrelated to construction activities that crosses the right-of-way within 100 feet of a perimeter air monitoring station.
d) A description of work activities conducted each day.
e) A description of offsite sources of dust within 100 feet of the perimeter air monitoring station.
f) Other observations that are necessary for evaluating RAM measurements (e.g., device stopped working, device fell over).
g) A description of dust generated from work activities during each monitoring period.

Collect a minimum of three months of RAM data to establish background dust levels under pre-construction conditions. Report the background dust level and use as a basis for establishing an initial dust threshold and triggers to warn of potential exceedances during construction activities. Modify the dust threshold by correlating the RAM data with perimeter air concentration data, and the observations/notes recorded by the Dust Control Monitor, collected throughout the course of the Project in coordination with the Engineer and DAQ.

Accommodate the Department, its consultants and regulatory agencies in conducting independent dust particulate sampling at any time for the duration of the Project.

3.4 Perimeter Air Results & Threshold. Perimeter air PCM results shall be made available within one (1) calendar day of the collection date. Results of perimeter air samples submitted for TEM-ISO analysis shall be made available within one (1) calendar day of the TEM analysis request. Analytical results for each Sampling Zone sample shall be compared to the perimeter air threshold of 0.002 PCME s/cc, in the following manner:

a) **Running Average Comparison.** On a daily basis, compare the running average of each Near and Far Sampling Zone station separately to the perimeter air threshold and provide the results upon completion. The running average is the arithmetic mean concentration across all samples collected for a given station to date; treating non-detect samples as zero. Samples submitted for TEM analysis will replace PCM results when calculating running averages. For example, if a sample is submitted for TEM analysis, the TEM result, not the corresponding PCM result, will be used in calculating the long-term running average.

   Plan, manage, schedule, and execute the work in accordance with the measures described and the requirements of the contract to ensure that the running average for each perimeter air station does not exceed the perimeter air threshold at the end of the Project. Update the plan as work progresses and sample results are reviewed and analyzed. Adjust work methods and operations as necessary to ensure NOA concentrations are below the threshold established by the contract.

b) **Daily Concentration Comparison.** On a daily basis, compare individual PCM sample results for each Near and Far Sample to the perimeter air threshold and provide the results upon completion. TEM results shall not be considered for the purposes of comparing daily concentrations to the threshold. Take the following actions within the Sample Zones where results exceed the threshold:

1st day PCM exceedance:	Employ additional dust control or mitigation measures.
2nd day PCM exceedance:	Employ even more dust control or mitigation measures.
3rd day PCM exceedance:	Modify work practices and intensify mitigation measures.
4th day PCM exceedance:	Stop work. Submit additional mitigation measures and obtain approval prior to commencing work.

The Department's consultants will collect perimeter air QA samples throughout the duration of the Project. Compare perimeter air sample results to the Department's consultants QA sample results. When the results differ, use the sample with the highest result (most conservative) for both long-term running average comparison and daily concentration comparison decision making.

Because of the presence of NOA within the project limits, it is possible that offsite NOA could migrate onsite due to natural disturbances (e.g., wind), nearby anthropogenic activities (e.g., recreational use), or other sources that are not construction related. The contractor may collect and invoke pre-construction ambient air data and perimeter air monitoring data for Sampling Zones where no construction activities are occurring, meteorological data, and/or upwind/downwind perimeter air monitoring comparisons to inform decisions on source attribution of perimeter threshold exceedances.

Prevent exceedances of the perimeter air threshold through the use of mitigation measures for each activity. Notify the Engineer of any exceedances upon receipt of the perimeter air results. Take immediate corrective action to prevent future exceedances. Corrective action shall include dust control, mitigation measures, and changes to methods of operation. Program the RAMs to alert the Dust Control Monitor and the Engineer of potential real-time exceedances and take immediate corrective action as described above.

3.5 Perimeter Air Results Reporting. Generate and submit daily and monthly reports in a format acceptable to the Engineer. Provide reports for discussion at weekly meetings. Such information will be included in the Department's Public Outreach program, including the project website. Reports shall include maps of the sampling zones and locations, individual sample results, exceedances, and running averages for each Sampling Zone station.

Provide RAM data on a daily basis with discussion on any exceedances of the perimeter air concentration threshold. RAM data shall also be included in the NOA Post-Construction Report.

3.6 MET Stations and Data. Provide and operate two real-time meteorological (MET) stations in order to characterize weather conditions within the right-of-way. Install MET stations at Station "P" 180+00, 520' RT and "P" 90+00, 150' RT. Move MET stations as required to accommodate construction and at the request of the Department. Re-install MET's at locations within the project limits to capture the greatest wind speeds for the primary dust generating activities on the Project. Use MET data to evaluate factors contributing to exceedances of the perimeter air threshold, to document site conditions during monitoring, to support decisions to adjust mitigation measures and work practices and to determine if weather conditions meet the criteria for blasting and conducting Work.

Record the following parameters every 5 minutes: wind speed, wind direction, relative humidity, temperature, rain, and barometric pressure. Use MET data to adjust work practices and engineering controls to ensure compliance with established thresholds. Provide real-time MET station data via web access. Website features shall include the ability to view current conditions at each of the sites, view the database of all weather data collected, sort and extract data based on selected criteria and download all data (or selected data) generated by the weather stations. Data files shall be compatible with the Department's standards. Submit a report summarizing the data recorded on a daily basis in a format acceptable to the Engineer. The MET station shall meet the following specifications:

a) Measure and record temperature from -25°F to 130 °F within 0.1 °F increments.
b) Measure and record wind speed from 0 mph to 100 mph within 1 mph increments.
c) Measure and record wind direction within 10°.
d) Measure and record relative humidity within 5%.
e) Measure and record rain within 0.1 inch.
f) Measure and record barometric pressure within 10 millimeter of mercury.

3.7 Dust Mitigation Plan. Prepare a Dust Mitigation Plan (DMP) and include as a part of the NMP. Work generating dust, with the exception of blasting, shall follow requirements as described in the Clark County Air Quality Regulations, Section 94.11.

Notify the Clark County Department of Air Quality (CCAQ) in writing at least 45 days before starting work that disturbs NOA. Submit proof of notification and any exemption. Keep a copy of the notification at the job site.

Maintain the Project in a condition that will result in no more than 20% opacity using the Time Averaged Method or the Intermittent Emissions Method at the point of dust generation and zero visible dust at the right-of-way. Employ work methods and administrative and engineering controls to comply with these requirements. Designated Dust Control Monitors, as required by Clark County Air Quality Regulations, Section 94 – Permitting and Dust Control for Construction Activities, shall monitor all construction activities including work performed by the utility companies their contractors and the Department's consultants.

Temporarily stop any work that results in exceedances of the DAQ dust standard and make modifications to mitigation measures, work practices, and engineering and administrative controls as needed. The Dust Control Monitor shall record visual observations of dust, a description of activities that generated dust, actions taken to prevent dust, and reporting procedures. Provide daily reports of dust control monitoring activities and include in monthly reports.

The DAQ dust requirement as previously described at the right-of-way supersedes Ringlemann Chart and opacity measurements described in 17 CCR 93105.

3.8 Blasting. Control dust generated during blasting activities by implementing mitigation measures, including, but not limited to, controlled blasts and use of dust suppression equipment, such as fog cannons and/or isolating misters.

Develop a plan and describe in detail the control measures that will be implemented for the control of dust emissions associated with the blasting of rock and include in the Dust Mitigation Plan. The plan shall be consistent with the plan submitted and approved by the DAQ and shall be included in the NMP.

The plan shall contain information explaining how the contractor will comply with following requirements:

a) When blasting occurs within 1,500 feet of a residential area, occupied building, or major roadway, and the wind direction is toward these structures, describe the dust control practices that will be employed to control dust emissions during blasting.
b) A general schedule shall be provided as to the hours of the day blasting will occur.
c) Blasting is prohibited when the forecast or current conditions indicate wind gusts of 25 mph or greater. Describe methods to be used to monitor weather and wind conditions prior to blasting.
d) Describe procedures for pre-watering and maintaining surface soils in a stabilized condition where drills, support equipment, and vehicles will operate.
e) Describe what materials will be utilized for stemming. NOA-containing soils are prohibited to use as stemming materials.
f) To control dust emissions during the blast, employ blasting mats or utilize a DustBoss or equivalent water spray system. Describe which system be will used.
g) Describe methods for mitigating fly-rock from blasting operations.
h) Describe procedures for pre-watering the area around the blast zone floor.
i) Describe methods for stabilizing soils directly after each blast.
j) Provide notification to DAQ at least 4 hours prior to each blast.

Coordinate all blasting activities and meetings with the Engineer and include the Engineer on all correspondence related to blasting.

3.9 Ingress & Egress Plan. Prepare an Ingress & Egress Plan and include as a part of the NMP. Develop a site plan identifying all ingress and egress sites, including Material Site CL 11-6 and facilities described below. Include drawings and a description of how site access will be controlled and maintained. At each location (Project and Material Site) complete at least one ingress and egress site prior to beginning any other dust generating construction activities.

To control the migration of NOA outside of the project limits provide, construct, install and maintain (at a minimum) the following:

a) One primary ingress and egress site located at Silverline Road with the following improvements:

    i. Traffic devices, signing, and pavement markings to channelize and control traffic.
    ii. A manned 24 foot double swing gate at the entry and security fencing to direct all persons accessing the site to a single entry and exit driveway. The gate must be manned during all hours of operation and must be closed and locked when unattended.
    iii. Signing to notify visitors of the presence of NOA and to instruct all persons accessing the site to check in at either the Engineer's or Contractor's field office before entering the site.
    iv. An access driveway from the intersection of the nearest paved public road (construct with 6 inches of Type 1 Base, free of NOA).
    v. A designated parking area (construct with 6 inches of Type 1 Base, free of NOA) with sufficient space for workers, employees, and visitors.

vi. Signs: Entrance, Exit, Mandatory Wash Station (2), Check-In, Resident Engineer, Contractor, and Boulder City Bypass Project Field Offices
vii. A bulletin board mounted on support posts with NOA information including the Regulated Area Map, site visit precaution procedures, contact list, and a daily bulletin of expected construction activities.
viii. Two washing stations designed using good engineering practices that include; gravel pad (stabilized construction entrance/exit), a drainage ditch that will convey the runoff water from the wash area to a sediment trapping device, wheel shakers, and wheel washing system for equipment, including equipment used by Department employees and consultants, utility companies their contractors and Department-invited personnel accessing the site.
ix. A decontamination and PPE storage trailer equipped with HEPA filters for employees, subcontractors, contractor-invited, and contractor-related personnel visiting the site, Department employees and consultants, utility companies and their contractors and Department-invited personnel visiting the site to don and remove PPE.
x. HEPA vacuums at Decon/wash down sites for personal Decon and equipment interior before the leave the site.
xi. A lined bin for the disposal of PPE to be located outside of the decontamination trailer.
xii. Training room (minimum size 14' X12') with NOA awareness training materials available for review.
xiii. CIH available to provide instruction and answer questions at any time for contractor-invited and contractor-related personnel arriving on site.

b) At least one secondary ingress and egress site with the following improvements:

i. Traffic devices, signing, and pavement markings to channelize and control traffic.
ii. A manned 24 foot double swing gate at the entry and security fencing to direct all persons accessing the site to a single entry and exit driveway. The gate must be manned during all hours of operation and must be locked when unmanned.
iii. Signing to notify visitors of the presence of NOA and to instruct all persons accessing the site to check in at either the Engineer's or Contractor's field office before entering the site.
iv. No persons shall access the site at a secondary ingress location that has not completed the appropriate Asbestos Awareness and/or Respiratory Training. The main ingress location must be used for new persons with a need to access the Project.
v. An access driveway from the intersection of the nearest paved public road (construct with 6 inches of Type 1 Base, free of NOA).
vi. Signs: Entrance, Exit, Mandatory Wash Station, and Check-In legible from the driver's access route,,
vii. A bulletin board mounted on support posts with NOA information including the Regulated Area Map, site visit precaution procedures, a contact list, and a daily bulletin of expected construction activities.
viii. At least one washing station designed using good engineering practices that includes; gravel pad (stabilized construction entrance/exit), a drainage ditch that will convey the runoff water from the wash area to a sediment trapping device, wheel shakers, and wheel washing system for equipment, including equipment used by Department employees and consultants, utility companies and their contractors and Department-invited personnel visiting the site, leaving the site.
xiv. HEPA vacuums at Decon/wash down sites for personal Decon and equipment interior before the leave the site.

c) Material Site CL 11-6 ingress and egress site with the following improvements:

i. Traffic devices, signing, and pavement markings to channelize and control traffic.
ii. Signing to notify visitors of the presence of NOA and to information describe the requirements for NOA

iii. No persons shall access the Pit CL 11-6 area that has not completed the Asbestos Awareness and Respiratory Training. The primary ingress location must be used for new persons on the Project.
iv. Signs: Entrance, Exit, Mandatory Wash Station, and Check-In legible from the driver's access route
v. A bulletin board mounted on support posts with NOA information including the Regulated Area Map, site visit precaution procedures, and a contact list,
vi. At least one washing station designed using good engineering practices that includes; gravel pad (stabilized construction entrance/exit), a drainage ditch that will convey the runoff water from the wash area to a sediment trapping device, wheel shakers, and wheel washing system for equipment, including equipment used by Department employees and consultants , utility companies and their contractors and Department-invited personnel visiting the site, leaving the site.
xv. HEPA vacuums at Decon/wash down sites for personal Decon and equipment interior before the leave the site.

Perform the following as a minimum as a part of the maintenance of the ingress and egress sites:

a) Document and monitor the contractor-invited and contractor-related personnel accessing and leaving the site on a daily basis.
b) Develop and distribute a protocol for equipment washing and an inspection checklist to be used for all equipment washing.
c) Wash all contractor equipment leaving the site at designated stations.
d) Provide water for and maintain washing systems.
e) Use hoses with automatic shutoff nozzles to prevent hoses from being left on
f) Use phosphate-free, biodegradable soaps
g) Wash water must be captured and disposed of in accordance with best management practices and in compliance with federal, state, and local regulations.
h) Remove accumulated sediment in washing station and/or sediment trapping device to maintain system performance
i) Sediment must be disposed of in accordance with best management practices and in compliance with federal, state, and local regulations
j) Provide instruction for and require all contractor-invited and contractor-related personnel visiting the site to use washing stations before leaving the site.
k) Provide instruction and allow all Department employees and consultants, utility companies and their contractors and Department-invited personnel visiting the site to use washing stations before leaving the site.
l) Clean all interior cabs with vacuums equipped with HEPA filters.
m) Blowers will not be allowed to remove mud/dirt tracked on paved roads.
n) For track out on to public roads, all provisions of Section 107.07 must be met

SECTION 4 - MATERIAL USAGE

4.0 Introduction. Use all soil and rock material excavated as part of the work on-site and within the right-of-way.

4.1 Material Sampling. Sample, analyze, and verify that the NOA soil concentration for the 750,000 cubic yards of material specified for placement east of Silverline Road and all Surfacing material planned for placement within the project limits is less than 0.25% whether obtained from excavated material or imported from off-site.

"Surfacing" means the act of providing or creating a temporary or permanent covering for a surface used for pedestrians, motor vehicles, non-motor vehicles, decoration, landscaping, soil stabilization, or erosion control. Examples of surfaces include, but are not limited to, roads, road shoulders, streets, access roads, alleys, lanes, driveways, parking lots, playgrounds, trails, squares,

plazas, and fairgrounds. “Surfacing” does not include creating a covering composed of asphalt concrete or Portland cement concrete.

Material with concentrations of 0.25% NOA or higher shall be covered with paving or Surfacing material, defined as soil and/or rock with NOA concentrations less than 0.25%. Surfacing material shall consist of a minimum three-inch thickness of stabilized soil having an NOA concentration of less than 0.25%.

Suitable rock material excavated as part of the work containing NOA may be used to produce aggregate for concrete, asphalt pavements, base course, and sub-base materials provided that all other contract requirements are met.

The Geologist shall lead the effort in managing the NOA material characterization. Develop and implement a soil and rock sampling program to verify that Surfacing material will contain NOA concentrations below the 0.25% threshold. The Surfacing material sampling program shall be developed in general accordance with CARB Test Method 435 (CARB 1991). All samples shall be collected consistent with CARB Test Method 435, Section 5 a) only, where a single 3-point composite sample shall represent up to 1,000 tons of material. Surfacing material sampling based on area (acres) or distance (miles) is not permitted. Details of the material sampling program shall be included in the SAP as discussed in Section 1.5. Record all sample results in NADES or an acceptable equivalent spreadsheet format. NADES files for PLM are available for download at http://www.epaosc.org/site/doc_list.aspx?site_id=4525. PLM results shall be maintained in the database as described in Section 1.6.

Analyze all Surfacing material samples by PLM as described in CARB Test Method 435. Surfacing material shall not be placed until corresponding analytical results are known. Any material that contains greater than or equal to 0.25% NOA by PLM shall not be used on the surface. The Surfacing material sampling program shall include details on how material will be sampled and segregated to ensure material with greater than or equal to 0.25% is not placed at the surface.

Characterize each material type using CARB 435. Material types may be combined if the total quantity of material characterized by the sample is less than 1,000 tons, the materials are the same rock and from the same source, and the only difference in the materials is the gradation.

Certify the NOA concentrations of all imported Surfacing material prior to delivery. Certification documentation shall include:

a) Characterization dates
b) Sampling personnel
c) Analytical results
d) Volume of material characterized
e) Volume of material in each shipment
f) A description of the material

Submit certification and analytical test results of the soil or rock analyzed for review and authorization before using the material on-site as Surfacing material.

Submit documentation to reflect the NOA soil concentration of in-place Surfacing material. Within 5 business days of completing placement of NOA cover material, submit a report for the placement locations, including the form "Location of Surfacing material Containing Naturally Occurring Asbestos" and electronic GPS data for each placement area and any applicable attachments.

The Engineer will provide notification within 5 business days of receipt if accepted. If the report is rejected, submit a corrected report within 5 business days of rejection notice.

4.2 Material Sampling Reporting. Provide the surfacing material sampling results in monthly reports, including sampling location, maps, and material placement locations, and include in the as-built plans and the NOA Post-Construction Report.

4.3 Exposed Rock Surface. Thoroughly wash all newly exposed rock surfaces to remove loose material.

4.4 Material Transport, Placement, and Disposal Procedures. Include material excavation, transport, placement, and disposal procedures in the NMP that describe the plan to control and execute the handling of all excavated material, including on-site and off-site transport and placement. Include the criteria that will be used to determine the placement of excavated material within embankment sections or stockpiles, dust suppression measures to be utilized during earthwork operations (including the handling of excavated rock and soil), and placement and/or disposal of excess material or material with NOA concentrations at or above 0.25%.

Transport of NOA material within the Project Right-of-Way, including the portions of US 95 and US 93 within the Phase 2 Project Right-of-Way, is considered to be onsite transport and does not require a permit from the Southern Nevada Health District (SNHD). Any transport of NOA materials, from one part of the Project to another part of the Project, which leave the Project Right-of-Way at any time, and which have an NOA concentration equal to or greater than 1%, will require a permit from the SNHD. Obtain and comply with all terms and conditions of the SNHD permit if required.

While transporting, clearing and grubbing and placing material east of Silverline Road, comply with the Phase 2 NMP NOA mitigation methods and requirements including the perimeter air threshold. Follow all terms and conditions of the Phase 2 DAQ Dust Control Perm, provide track-out and NOA mitigation for the crossing of US95, maintain and monitor material placed or stockpiled on the Phase 2 site for dust and make adjustments as necessary to meet the requirements. Stabilize material to mitigate dust until Relief of Maintenance is approved.

Material transported to and from Material Site CL11-6 shall have an NOA content of less than 0.25% by PLM.

SECTION 5 - REPORTING

5.0 Introduction. Provide the following reports documenting NOA-related items.

5.1 Daily Reports. Produce and submit daily reports describing the data collected and procedures implemented due to NOA. Daily reports shall include sample collection details, MET data, Ram Data, PPE used, the location and description of construction activities, compliance problems encountered, health and safety monitoring, results of dust control monitoring, copies of field sample data sheets (FSDSs), Location of Surfacing Material Containing Naturally Occurring Asbestos forms, and any deviations from planned activities.

5.2 Monthly Reports. Produce and submit a Monthly NOA Summary Report to summarize:

a) Personal air monitoring results and any changes to NOA mitigation practices due to personal air data.
b) Perimeter air monitoring results and any changes to NOA mitigation practices due to perimeter air data. Perimeter air data shall be tabulated and analyzed for trends. Trend analyses of perimeter air results shall include work activities performed, exceedances of the threshold, weather, and any additional factors potentially impacting perimeter air monitoring.
c) Changes to NOA management due to changes in site conditions or dust mitigation practices.
d) A description of materials that were derived from onsite sources and used for work. All sampling and analyses shall be included.

5.3 NOA Post-Construction Report. As a condition of Final Acceptance, submit an NOA Post-Construction Report for approval. The report shall memorialize management of NOA during construction. The report shall describe:

a) A description of the work area, climate, vegetation, land use, and ecology.
b) A description of bypass construction activities.
c) A description of NOA monitoring activities.
d) Results of NOA sampling.
e) RAM and MET data.
f) As-built plans that include location and concentration of NOA in placed material used within the project limits.
g) A description of employee monitoring during work activities in areas with NOA.
h) A description of treatment and/or disposal of wash station water and sediment.
i) A description of disposal of potentially contaminated items including PPE.
j) The location and construction of surplus soil and rock disposal repositories.
k) Laboratory reports.
l) NOA Project database.
m) Inclusion of monthly reports.

5.4 RAM Data. Submit RAM data daily and summarize in the Monthly NOA Summary Report. The report shall include tabulated data and analyses. Data analyses shall include the calculation of a background dust level, trends in dust levels during work, determination of when background dust levels have been exceeded, and observations/notes recorded by the Dust Control Monitor.

5.5 MET Data. Provide real-time MET data and submit summarized reports daily. Include in summaries in the Monthly NOA Summary Report. The report shall include tabulated data and analyses. Data analyses shall include precipitation events, rain fall totals, wind rose, temperature averages, and any other conditions potentially affecting NOA mitigation practices.

5.6 Visual Observations. Submit visual observations during dust control monitoring daily and summarize in the Monthly NOA Summary Report. The report shall include exceedances of DAQ regulations and observations on dust generating activities. The report shall include a description of activities that resulted in exceedances, when they occurred, duration, and corrective action taken.

SECTION 6 - MODIFICATIONS TO SAMPLE COLLECTION PROCEDURES AND LABORATORY ANALYSIS

6.0 Perimeter Air Samples. Samples shall be collected in accordance with EPA SOP #2015, *Asbestos Sampling* (EPA 1994), with the following modifications:

a) Each perimeter air sample shall be collected over a 24-hour period on a daily basis. Air samples shall be collected using a target flow rate of 3.0 liters per minute (L/min) resulting in a total sample volume of 4,320 liters (L). The sampling pump shall provide a non-fluctuating air flow through the filter, and shall maintain the initial volume flow rate to within ±10% throughout the sampling period. If at any time the measurement indicates that the flow rate has increased or decreased by more than 10% of the set flow rate, sample collection shall cease and the sample shall be voided. Sampling personnel shall adjust sample flow rates (e.g., lower flow rate) to avoid filter overloading as determined by the laboratory. However, in no case shall a sample be collected at a flow rate lower than 1.0 L/min, since the linear flow velocity would fall below 4 centimeters per second (cm/sec). Flow rates shall not exceed 10.0 L/min.

Perimeter air samples shall be analyzed by PCM NIOSH 7400 with the following modifications:

a) The analyst shall count a minimum of 20 graticule fields. The analyst shall continue counting graticule fields until 100 fibers are identified or until the achieved analytical sensitivity is 0.00067 cc^{-1}. Based on the anticipated sample volume (4,320 liters) an examination of 100

graticule fields should result in an achieved sensitivity of 0.00011 cc^{-1}, but additional graticule fields may be required if the target sample volume is not met. The analysis shall stop after examination of 200 graticule fields, regardless of fiber count or achieved sensitivity.

b) All filter remainders shall be retained intact in archive for possible future analysis by TEM.

Perimeter air samples submitted for TEM analysis shall be analyzed in basic accordance with TEM ISO 10312:1995(E) (direct preparation) or ISO 13794:1999(E) (indirect preparation), with the following project-specific modifications:

a) Prepared grids shall be examined under low magnification, recording only those structures that are PCME, where PCME is defined as any structure with a length greater than 5 micrometers (µm), a width of 0.25 µm or greater (no upper bound width restriction), and an aspect ratio of 3:1 or greater.
b) The analyst shall examine a minimum of 2 grid openings from each of two grids. The analyst shall continue examining grid openings until 25 PCME structures are recorded or until the achieved analytical sensitivity is 0.00067 cc^{-1}. Based on the anticipated sample volume (4,320 L) an examination of approximately 13 grid openings should result in an achieved sensitivity of 0.00067 cc^{-1} (assuming a grid opening area of 0.01 mm^2), but additional grid openings may be required if the target sample volume is not met. The analysis shall stop after examination of 2 mm^2 of filter (approximately 200 grid openings, assuming a grid opening area of 0.01 mm^2), regardless of structure count or achieved sensitivity.
c) The analyst shall record all asbestos types, including chrysotile, regulated amphiboles, and non-regulated amphiboles. In addition, the analyst should record the presence of non-asbestos fibrous mineral types (e.g., erionite), if observed; however, these structures should not be included in the number of countable asbestos structures.
d) All filter remainders shall be retained intact in archive for possible additional future analysis by TEM. Filters shall be archived for 6 months after Final Acceptance or until release of performance bonds and retention.

SECTION 7. FIELD SAMPLE DATA COLLECTION

7.0 Introduction. Example forms have been provided for use to specify the minimum level of detail and content expected for each type of form. Forms may be modified from the format provided with approval. General data field descriptions are provided for illustrative purposes only and may be modified, as appropriate, to meet contractor needs and documentation requirements.

7.1 Example Field Methods. Examples of planning documents and reports for the Libby Asbestos Superfund Site can be found online here, http://www2.epa.gov/region8/libby-site-documents. Planning documents such as SAPs and QAPPs describe the procedures for asbestos sampling, data management, data analyses, and other procedures necessary for working around and characterizing asbestos.

7.2 Field Sample Data Sheets. Complete FSDSs during stockpile, soil, or conveyor belt sampling, perimeter air sampling, or personnel air sampling to document sampling details. FSDS for stockpile, soil, or conveyor belt sampling, perimeter air sampling, or personnel air sampling are included as the following forms:

Location of Surfacing Material Containing NOA: Location Identification Form

LOCATION OF SURFACING MATERIAL CONTAINING NATURALLY OCCURRING ASBESTOS							
CONTRACTOR NAME				CONTRACT NUMBER		CO/RTE/PM	
CONTRACTOR ADDRESS				PROJECT INFORMATION NAME			
NOA Material Location Number							
Surface Material with NOA Location Determination Method ( ) GPS ( ) Land Surveyor							
NOA Surface Material Perimeter Coordinates							
	Latitude (y)	**Longitude (x)**	**Elevation (NAVD88)**	**Station Number**	**Offset Number**	**Nevada State Plane Coordinate (Northing -y)**	**Nevada State Plane Coordinate (Easting - x)**
Point 1							
Point 2							
Point 3							
Point 4							
Point 5							
Point 6							
Point 7							
Point 8							
Point 9							
Point 10							
Point 11							
Point 12							
Description:							
SIGNATURE			Print Name				
Surveyor or Civil Engineer License Number			License Expiration Date		Date of Survey		

Note: Attach representative plan sheets for reference

Location of Surfacing Material Containing NOA: General Data Field Descriptions

LOCATION OF SURFACING MATERIAL CONTAINING NATURALLY OCCURRING ASBESTOS
NOA Material Location Number
Provide a unique sequential number for each location (1,2,3,4….)
Surface Material with NOA Location Determination Method
Check either GPS or surveyed as appropriate
NOA Surface Material Perimeter Coordinates
Survey the perimeter of the area surface material was applied. Record latitude, longitude, elevation, station numbering, offset numbering, and northing and easting in Nevada State Plane coordinates. Collect a minimum of 10 survey points defining a polygon or more if necassary to define the area. If more points are necessary, attach an additional form and use the same NOA material location number.
Description
Include an estimate of the volume of material placed at the surface along with any other pertinent information.
Signature
Person collecting data
Print Name
Person collecting data
License Number
Land surveyor or civil engineer license number
License Expiration Date
Date of expiration for license
Survey Date
Date data was collected
Signature
Person collecting data
Print Name
Person collecting data
License Number
Land surveyor or civil engineer license number
License Expiration Date
Date of expiration for license
Survey Date
Date data was collected
The contractor should verify that data entered on this form is complete and accurate. Sign the form and clearly print name, title, phone number, and date.

Perimeter Air Threshold Exceedance: Form

Boulder City Bypass Project Perimeter Air Threshold Exceedance
Field Sample Data Sheet

Associated Daily Dust Control Record _____ Associated Perimeter Air FSDS #_____

Data Item	1	2
Sample ID		
Perimeter Air Station ID		
Sample Collection Date		
Sample Location Description	Near Far	Near Far
Analytical Method		
Laboratory Report Number (attach laboratory results to this form)		
Construction activities during perimeter air monitoring		
Consecutive occurrence of exceedance	1st 2nd 3rd 4th	1st 2nd 3rd 4th
Date and time NDOT was notified		
NDOT POC and method of notification		
Factors which could have contributed to exceedance of the perimeter air threshold		
Corrective actions taken to prevent future exceedances		

For Field Team Completion: Completed by: _____ QC by:_____	For Data Entry: Entered by:_____ QC by:_____

Perimeter Air Threshold Exceedance: General Data Field Descriptions

Sample ID: Record the unique sample number assigned to each sample, as designated by the NMP/SAP governing sample collection.

Perimeter Air Station ID: Record the unique station ID number assigned to each station, as designated by the NMP/SAP governing sample collection.

Sample Collection Date: Record the sample collection date in the format MM/DD/YY. Note that multiple dates may need to be recorded for samples collected over multiple days using the same cassette. Refer to the NMP/SAP governing sample collection for additional requirements.

Sample Location Description: Circle 'Near' or 'Far' perimeter air station location.

Analytical Method: Record the method(s) used to analyze the sample.

Laboratory Report Number: Record the laboratory report number or sample delivery group number the sample results were reported under. Attach the report pages which present the perimeter air result(s).

Construction activities during perimeter air monitoring: List the construction activities which could generate dust in the sample zone.

Consecutive occurrence of exceedance: Circle whether this sample represents the 1st, 2nd, 3rd, or 4th consecutive day exceedance for this station.

Date and time NDOT was notified: Record the date and time NDOT was notified of the threshold exceedance.

NDOT POC and method of notification: List the NDOT point(s) of contact that were notified of the threshold exceedance and the

Factors which could have contributed to exceedance of the perimeter air threshold: Describe the factors which could have contributed to exceedance of perimeter threshold. Generally these will be construction activities that generate dust, but other construction related causes or possible natural causes should be described.

Corrective actions taken to prevent future exceedances: List the corrective actions which were taken to prevent future exceedances the perimeter threshold.

Perimeter Air Sample: Form

I-11 Boulder City Bypass Project Perimeter Air Sample
Field Sample Data Sheet

Date _____ Associated Daily Dust Control Record _____ FSDS # _____

Logbook Pages_____ Sampler(s)**_____

	Data Item	1	2
*	**Sample ID**		
*	**Perimeter Air Station ID**		
*	**GPS Location or Coordinates**		
*	**Sample Type**	FS FB LB Other _____	FS FB LB Other _____
*	**Sample Location Description**	Near Far	Near Far
*	**Flow Meter Type**	NA Rotameter DryCal	NA Rotameter DryCal
*	**Cassette Lot No** _____ **Flow Meter ID** _____		
*	**Pump ID**		
*	**Sample Air Start Date**		
*	**Sample Air Start Time**		
*	**Sample Air Start Flow (L/min)**		
*	**Sample Air Stop Date**		
*	**Sample Air Stop Time**		
*	**Sample Air Stop Flow (L/min)**		
*	**Pump Fault**	No NA Yes	No NA Yes
	Sample Total Time (min)		
	Sample Quantity (L)		
*	**Sample Field Comments**		
*	**Construction activities during perimeter air monitoring**		

For Field Team Completion: Completed by: _____
QC by:_____

For Data Entry: Entered by:_____
QC by:_____

Perimeter Air Sample: General Data Field Descriptions

Sample ID: Record the unique sample number assigned to each sample, as designated by the NMP/SAP governing sample collection.

Perimeter Air Station ID: Record the unique station ID number assigned to each station, as designated by the NMP/SAP governing sample collection.

GPS Location or Coordinates: Record the perimeter air station GPS coordinates in the Department required coordinate system.

Sample Type: Circle 'FS' for field sample, 'FB' for field blank, 'LB' for lot blank, 'Other' for all other types of samples.

Sample Location Description: Circle 'Near' or 'Far' perimeter air station location.

Flow Meter Type: Circle 'NA' if a flowmeter was not used to check the flow rate of the pump, 'Rotameter' if a rotameter was used to check the flow rate of the pump, 'DryCal' if a piston style instrument was used to check the flow rate of the pump.

Cassette Lot No: Record the lot number from the sample cassette box.

Flow Meter ID: Record the serial number of the flowmeter or enter 'NA' if a flowmeter was not used.
Pump ID: Record the serial number of the perimeter air pump.

Sample Air Start Date: Record the start date in the format MM/DD/YY. Note that multiple start and stop dates/times, as well as start and stop flow rates, may need to be recorded. Refer to the NMP/SAP governing sample collection for additional requirements.

Sample Air Start Time: Record the starting time (in military units) of each air sample aliquot.
Sample Air Start Flow: Record the starting pump flow rate, in liters per minute (L/min) for the air sample collected.
Sample Air Stop Date: Record the stop date in the format MM/DD/YY.
Sample Air Stop Time: Record the stopping time (in military units) of each air sample aliquot.

Sample Air Stop Flow: Record the stopping pump flow rate (in L/min) for the air sample collected. If a flow rate is recorded while the pump is running, the stop time and next recorded start time will be the same.

Pump Fault: Circle "Y" or "N" to indicate a pump fault. For all types of blank samples, circle "NA". Use Sample Field Comments to note if a pump faulted during air sample collection, as determined by an unacceptable flow rate deviation (refer to the governing NMP/SAP referencing this procedure for flow rate requirements), or due to a mechanical fault (pump shut-off).

Sample Total Time (min): Record the total sample collection period in minutes (min) that the sample pump was running and air was passing over the sample cassette.

Sample Quantity (L): The sample quantity represents the total volume in liters (L) of the sample collected. Generally, the Sample Total Time multiplied by the Sample Air Stop Flow will equal the Sample Quantity. Refer to the governing NMP/SAP for calculating the Sample Quantity.

Sample Field Comments: Record any additional information that may be important to data users. Refer to the governing NMP/SAP referencing this procedure for any specific requirements.

Construction activities during perimeter air monitoring: List the construction activities that occurred in the sample zone and that could or did generate dust.

Personal Air Sample: Form

I-11 Boulder City Bypass Project Personal Air Sample
Field Sample Data Sheet

Date _____ Logbook#_____ Pages_____

Sampler(s)**_____ FSDS # _____

	Data Item	1	2	3
*	**Sample ID**			
*	**Worker Name and ID Number**			
*	**Worker Task**			
*	**Area(s) or zone(s) work was completed in**			
*	**Sample Type**	FS FB LB Other_____	FS FB LB Other_____	FS FB LB Other_____
*	**Sample Location Description**			
	Ongoing Construction Activity			
*	**Sample Air Type**	NA PA-EXC PA-TWA	NA PA-EXC PA-TWA	NA PA-EXC PA-TWA
*	**Flow Meter Type**	NA Rotameter DryCal	NA Rotameter DryCal	NA Rotameter DryCal
	Cassette Lot No			
	Flow Meter ID			
*	**Pump ID**			
*	**Sample Air Start Date**			
*	**Sample Air Start Time**			
*	Sample Air Start Flow (L/min)			
*	**Sample Air Stop Date**			
*	**Sample Air Stop Time**			
*	Sample Air Stop Flow (L/min)			
*	**Pump Fault**	No NA Yes	No NA Yes	No NA Yes
	Sample Total Time (min)			
	Sample Quantity (L)			
	Sample Field Comments			
*	**Weather Conditions**			

For Field Team Completion: Completed by: _____ QC by:_____	For Data Entry: Entered by:_____ QC by:_____

Personal Air Sample: General Data Field Descriptions

Sample ID: Record the unique sample number assigned to each sample, as designated by the NMP/SAP governing sample collection.

Worker Name and ID Number: Record the worker's name and employee ID number.

Worker Task: List the tasks the worker completed during personal air monitoring. Only tasks that occurred while the sample pump was pumping should be recorded.

Area(s) or zone(s) work was completed in: List the area or zones of the site where the worker was present during sampling.

Sample Type: Circle 'FS' for field sample, 'FB', 'LB' for lot blank, 'Other' for all other types of samples.

Sample Location Description: Describe pertinent features of the sample location (e.g., flat and open, near hills, etc.) The governing NMP/SAP will describe features that are pertinent to personal air sampling.

Ongoing Construction Activity: Record the nearby construction activities that generate dust and occur near the worker being monitored. If the worker travels around the site during monitoring, the duration of ongoing construction activities that occur around the employee should be recorded.

Sample Air Type: Circle one of the following personal air types:

- PA-TWA – Time-weighted average sample, collected over an 8-hour period (may be composited with other personal air samples to represent an average work day)
- PA-EXC – Excursion sample, collected over a 30-minute period (time may be approximate)
- NA – Use for all types of blank samples, or as otherwise specified in the governing NMP/SAP referencing this procedure

Flow Meter Type: Circle 'NA' if a flowmeter was not used to check the flow rate of the pump, 'Rotameter' if a rotameter was used to check the flow rate of the pump, 'DryCal' if a piston style instrument was used to check the flow rate of the pump.

Cassette Lot No: Record the lot number from the sample cassette box.

Flow Meter ID: Record the serial number of the flowmeter or enter 'NA' if a flowmeter was not used.

Pump ID: Record the serial number of the perimeter air pump.

Sample Air Start Date: Record the start date in the format MM/DD/YY. Note that multiple start and stop dates/times, as well as start and stop flow rates, may need to be recorded. Refer to the NMP/SAP governing sample collection for additional requirements.

Sample Air Start Time: Record the starting time (in military units) of each air sample aliquot.

Sample Air Start Flow: Record the starting pump flow rate, in liters per minute (L/min) for the air sample collected.

Sample Air Stop Date: Record the stop date in the format MM/DD/YY.
Sample Air Stop Time: Record the stopping time (in military units) of each air sample aliquot.

Sample Air Stop Flow: Record the stopping pump flow rate (in L/min) for the air sample collected. If a flow rate is recorded while the pump is running, the stop time and next recorded start time will be the same.

Pump Fault: Circle “Y” or “N” to indicate a pump fault. For all types of blank samples, circle “NA”. Use Sample Field Comments to note if a pump faulted during air sample collection, as determined by an unacceptable flow rate deviation (refer to the governing NMP/SAP referencing this procedure for flow rate requirements), or due to a mechanical fault (pump shut-off).

Sample Total Time (min): Record the total sample collection period in minutes (min) that the sample pump was running and air was passing over the sample cassette.

Sample Quantity (L): The sample quantity represents the total volume in liters (L) of the sample collected. Generally, the Sample Total Time multiplied by the Sample Air Stop Flow will equal the Sample Quantity. Refer to the governing NMP/SAP for calculating the Sample Quantity.

Sample Field Comments: Record any additional information that may be important to data users. Refer to the governing NMP/SAP referencing this procedure for any specific requirements.

Weather Conditions: Record general weather conditions including precipitation, wind speed, and wind direction.

Stockpile, Soil, or Conveyor Belt Sample: Form

I-11 Boulder City Bypass Project Stockpile, Soil, or Conveyor Belt Sample
Field Sample Data Sheet

Date _____Logbook #_____ Page #_____

Sampler(s)**_____ FSDS # _____

	Data Item	1	2	3
*	**Sample ID**			
	GPS Location or Coordinates			
*	**Location Description**			
	Material Type (circle all that apply)	Alluvial Volcanics Mafic Sed Landscape Other	Alluvial Volcanics Mafic Sed Landscape Other	Alluvial Volcanics Mafic Sed Landscape Other
*	**Location Area/Volume (ft^2 or yd^3)**			
*	**Stockpile Number or Conveyor Belt ID**			
	Location Comment			
	Slough raked away (stockpile only)	Yes No	Yes No	Yes No
	Sample Apparatus	Tube Shovel Trowel Augur Other	Tube Shovel Trowel Augur Other	Tube Shovel Trowel Augur Other
	Sample Apparatus Depth			
*	**Sample Time**			
*	**Sample Type**	Normal Duplicate Other_____	Normal Duplicate Other_____	Normal Duplicate Other_____
*	**3 point composite**	Yes No	Yes No	Yes No
	Laboratory			
	Sample Field Comments (include a sketch if applicable)			

For Field Team Completion: Completed by: _____ QC by:_____	For Data Entry: Entered by:_____ QC by:_____

Stockpile, Soil, or Conveyor Belt Sample: General Data Field Descriptions

Sample ID: Record the unique sample number assigned to each sample, as designated by the NMP/SAP governing sample collection.

GPS Location or Coordinates: Record the perimeter air station GPS coordinates in the Department required coordinate system.

Location Description: For stockpile samples, record the areas of the stockpile that grab samples were collected. For soil samples, describe the soil being sampled and the location of grab samples. For conveyor belt samples, describe the location of the conveyor belt the grab samples were collected.

Material Type: Circle the type of material collected during sampling. If the material is not listed, circle 'Other' and describe the material in the Sample Field Comments.

Location Area/Volume: For surface soil samples, record the surface area of the ground being sampled. For surface and subsurface soil samples, record the volume of material being sampled. For stockpile samples, record the volume of the stockpile being sampled. For conveyor belt samples, record the volume of material being characterized by the grab samples.

Stockpile Number or Conveyor Belt ID: Record the stockpile or conveyor belt being sampled.

Location Comment: Describe any pertinent sample information that the data user will need.

Slough raked away: Circle 'Yes' or 'No' if the slough was raked away or not.

Sample Apparatus: Record the sample apparatus used to collect soil or material samples. Sample apparatuses generally include, thin-walled tubes, hand trowels, small brushes and dust pans, templates used to isolate materials, augers, round point shovels and other apparatuses.

Sample Apparatus Depth: Record the depth(s) sample apparatus were inserted into the stock pile or ground.

Sample Time: Record the sampling time (in military units) of each sample.

Sample Type: Circle 'Normal', 'Duplicate', or 'Other' as the sample type in accordance with the governing NMP/SAP.

3 point composite: Circle 'Yes' or 'No' if 3 grab samples were collected. If 3 grab samples were not collected, provide an explanation in the Sample Field Comments.

Laboratory: Record the laboratory the sample was sent to for analyses.

Sample Field Comments (include a sketch if applicable): Record any additional information that may be important to data users. Refer to the governing document referencing this procedure for any specific requirements.

METHOD OF MEASUREMENT

637.04.01 Measurement. Temporary pollution control will be measured by the lump sum.

Dust control will be measured by the lump sum.

BASIS OF PAYMENT

637.05.01 Payment. The accepted quantities, measured as provided above, will be paid for at the contract price bid per unit of measurement for the pay items listed below that are shown in the proposal. Payment will be full compensation for the work prescribed in this Section.

Payment for temporary pollution control by the lump sum will be full compensation for all work required in this Section, with the exception of dust control. Payment for dust control will be made separately.

Partial payments for temporary pollution control and dust control will be made as the work progresses. The Engineer will determine the reasonable payment percentage for each payment cycle.

Concurrent with the Baseline Schedule submit for approval a Pollution Control Schedule of Values (PCSV) for the payment of the activities and services as described below. Acceptance of the PCSV shall be a condition of proceeding with Pollution Control work. In addition, no payment will be made for the Pollution Control bid item until the PCSV is accepted.

The following pertains to presentation of the Pollution Control Schedule of Values:

a) The activities shall be organized and grouped according to the activities and services as described below and shall be included in the Baseline Schedule with detailed descriptions of approach and basis of bid included in the NMP.

b) Each level of activity shall include subtotals including separate subtotals for work performed by subcontractors and vendors.

c) The Schedule of Values shall contain each activity from the Baseline Schedule with corresponding unique activity identification numbers, the activity description, the quantity, the applicable unit, unit price and scheduled value.

d) The project management, administration, design, contingencies and any allowance for inflation, profit and financing, as well as indirect site costs not clearly identified in the activities and services described below shall be prorated through all payment activities so that the sum of all the Schedule of Values line items equals the total Pollution Control lump sum bid price amount.

Activity	Description
NMP (Time & Materials)	Costs for developing, producing, distributing, and maintaining the Naturally Occurring Asbestos Management Plan
NOA Personnel (Time Related)	Personnel Required (CIH, Geologist, ACP, CEM) involved in planning, scheduling, sample collection and monitoring, oversight – excluding Data Management). Include hourly rates of personnel in NMP.
Personal Air Monitoring – Initial Exposure	PPE and other supplies needed to perform initial exposure monitoring for all dust generating

Assessment (Equipment & Disposal)	activities in the Baseline Schedule.
Personal Air Monitoring - During Construction (Equipment & Disposal)	Personal Air Monitoring costs and replacement for PPE, monitoring equipment and other supplies required to perform initial exposure and periodic sampling (Excludes time related effort)
Perimeter Air Monitoring (Equipment & Maintenance)	Perimeter Air Monitoring System – initial costs, installation replacement and maintenance of equipment and other supplies (Excludes sampling and monitoring)
RAMs (Equipment & Maintenance)	RAMs – initial costs, installation, initial testing, replacement and maintenance (Include monitoring in NOA Personnel)
Soil Sampling (Lab Fees & Equipment)	NOA Soil Sampling and Analysis – lab fees (Include sample collection and preparation time in NOA Personnel)
Air Sampling (Lab Fees & Shipping)	NOA Air Sampling and Analysis – lab fees (Include sample collection and preparation time in NOA Personnel)
METs (Equipment & Maintenance)	MET – Initial cost, installation and maintenance (Include monitoring and data collection in NOA Personnel)
Documentation & Data Management (Time Related)	Daily documentation and Data Management (office effort for compilation of data, daily documentation, database updates, lab reporting coordination and compilation)
Reporting (Time Related)	Costs for developing, producing, distributing, and maintaining the Reporting of all data
Training (Time Related)	Development, delivery, updating, maintenance, tracking and monitoring of NOA Training required for the Project. Show each type of training as separate activities.
Site Controls - Ingress & Egress (Facility Requirements)	Costs for design and development and all requirements of Ingress and Egress Site Control including time related costs for manned ingress and egress stations.

When requested, furnish invoices and receipts for actual costs. However, if temporary pollution control or dust control become inadequate, payment will cease and the provisions of Subsection 637.03.02 may be enforced.

Payment will be made under:

Pay Item	**Pay Unit**
Temporary Pollution Control	Lump Sum
Dust Control	Lump Sum

APPENDIX E

PHASE 2

NATURALLY OCCURRING ASBESTOS

PERFORMANCE SPECIFICATIONS

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I-11 BOULDER CITY BYPASS

DESIGN-BUILD PROJECT

ATTACHMENT 2 – TECHNICAL PROVISIONS

SECTION A – PERFORMANCE SPECIFICATIONS

SECTION 21 – NATURALLY OCCURRING ASBESTOS

21.0 NATURALLY OCCURRING ASBESTOS

21.1 SCOPE

This Performance Specification covers the requirements for the development and implementation of mitigation measures to address naturally occurring asbestos (NOA). Recent investigations by the RTC have determined that NOA is present at varying concentrations in soil and rock throughout much of the Project area. The *in-situ* material (i.e., soil and rock) containing NOA will be disturbed by Work activities, such as blasting, grading, excavation, drilling, material processing, loading, hauling and placement. Therefore, mitigation measures are required to prevent NOA from becoming airborne and potentially inhaled by workers and the general public. Any activity or existing condition that has the potential to contribute to the release of NOA into the air during Work performed by the Design-Builder will require mitigation.

There are currently no statutes or regulations specifically addressing NOA in the State of Nevada. As such, technical provisions included in this Performance Specification are modeled after the State of California regulations for addressing NOA during Work. These regulations are described in Title 17 California Code of Regulations (CCR) §93105 and §93106. Due to the presence of NOA at various concentrations throughout the Project area, the Federal Occupational Safety and Health Administration (OSHA) asbestos standard for the construction industry applies to Work performed on the Project.

Use the most current version of each listed standard or reference as of the Proposal Due Date unless modified by an Addendum or Change Order. In the case of a conflicting requirement between the listed standards or between the standards and the Contract requirements, the Design-Builder shall apply the more stringent of the requirements.

21.2 APPLICABLE STANDARDS AND REFERENCES

The design and construction of the project and all corresponding NOA mitigation measures shall be in accordance with this Performance Specification and the relevant requirements of the following standards (Subsection 21.2.1), unless otherwise stipulated in this specification. In the event the Design-Builder's Proposal has a higher standard, in the sole opinion of the RTC, than the listed standards, adhere to the Proposal standard. Standards specifically cited in the body of this Performance Specification establish requirements that shall have precedence over all other standards. Should the requirements in any standard conflict with those in another, the higher quality standard, in the sole opinion of the RTC, shall govern. It is the Design-Builder's responsibility to obtain clarification of any ambiguity from the RTC prior to proceeding with design or construction.

Use the version of each standard as shown below unless modified by an Addendum. Where standards or references are referred to as "latest edition", the latest edition shall be the last version of the standard or reference published prior to the Proposal Due Date.

Clark County Department of Air Quality (DAQ) will replace the California Air Pollution Control Officer (APCO) as the authority in 17 CCR §93105 and 17 CCR §93106. Reference documents are provided for informational purposes.

The References (Subsection 21.2.2) include reports prepared by the RTC and additional information available from other sources. The Design-Builder may use or elect to not use any of the information contained in the References at its own risk and shall be solely responsible for its own independent due diligence in conforming to the Contract requirements.

The exemptions provided for in the ATCMs referenced below will not be allowed for this Project.

21.2.1 Standards

Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations. 17 CCR §93105.

Asbestos ATCM for Surfacing Applications. 17 CCR §93106.

California Air Resources Board (CARB). 1991. Determination of Asbestos Content of Serpentine Aggregate. Method 435.

Clark County DAQ. 2003. Construction Activities Dust Control Handbook. March.

Clark County DAQ. 2004. Section 94 Permitting and Dust Control for Construction Activities.

U.S. Environmental Protection Agency (EPA). 1994. Asbestos Sampling, Standard Operating Procedure #2015, Rev. 0.0. November 17.

EPA. 2002. EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5. Final. December.

EPA. 2005a. EPA Uniform Federal Policy for Quality Assurance Plans. EPA-505-F-03-001. March.

EPA. 2005b. CIO Policy Transmittal 05-002, *National Geospatial Data Policy*. August 24. [http://www.epa.gov/irmpoli8/policies/21310.pdf].

International Organization for Standardization (ISO). 1995. Ambient Air – Determination of asbestos fibers – Direct-transfer transmission electron microscopy method. ISO 10312:1995(E).

ISO. 1999. Ambient Air – Determination of asbestos fibers – Indirect-transfer transmission electron microscopy method. ISO 13794:1999(E).

National Institute for Occupational Safety and Health (NIOSH). 1994a Manual of Analytical Methods for Asbestos and other Fibers by PCM. 7400. Issue 2. August.

NIOSH. 1994b. Asbestos by TEM. 7402. Issue 2. August.

OSHA 29 Code of Federal Regulations (CFR) §1926.1011.

OSHA. 1995. Sampling and Analysis – Non-mandatory, Title 29 CFR §1926.1101, Appendix B, June.

21.2.2 Reference Documents

The following reports are provided as Reference Documents for the Design-Builder's information only. The RTC takes no responsibility for the Design-Builder's use of the data, test results, analyses, or recommendations contained in these reports.

EPA. 2008. Framework for Investigating Asbestos-Contaminated Superfund Sites. Office of Solid Waste and Emergency Response (OSWER) Directive #9200.0-68. September.

Tetra Tech, Inc. 2014. Final Sampling and Analysis Plan and Quality Assurance Project Plan for Boulder City Bypass Naturally Occurring Asbestos (NOA) Project, Phase I (Railroad Pass to Silverline Road). Addendum 1. May 23.

21.3 REQUIREMENTS

21.3.1 Required Personnel

The Design-Builder shall provide the following individuals:

a) A Certified Industrial Hygienist (CIH), certified by the American Board of Industrial Hygiene with a minimum of 10 years of experience, which includes 3 years of experience working with NOA or commercially-processed asbestos.
b) An Asbestos Competent Person (ACP), as defined in 29 CFR §1926.1101 (b), shall be on site when NOA mitigation measures are being implemented and at all times when construction activities are taking place. The Design-Builder shall have a sufficient number of ACPs to properly manage and supervise the Project.
c) A Dust Control Monitor, as defined in Clark County Air Regulations, Section 94 (DAQ 2004), shall be onsite during Work and shall devote the majority of their time to managing dust prevention and control.
d) A Geologist meeting the requirements of Nevada Revised Statutes (NRS) 514.005 with a minimum of 10 years of field mapping experience, which includes 3 years of experience with NOA.
e) A State of NV certified environmental manager (CEM), as defined in NRS 459.485, 459.500) and Nevada Administrative Code (NAC) 459.9704. "Environmental manager" means a natural person who is certified by the Division pursuant to NAC 459.972 or 459.9724.

21.3.2 NOA Management Plan

The NOA Management Plan (NMP) shall describe Design-Builder's managerial approach, strategy, characterization, and quality procedures to achieve all of the requirements for the mitigation of NOA. The plan shall include details of the mitigation measures, engineering controls, sampling and analyses, and the monitoring and response protocol, and shall include all actions taken by the Design-Builder, as part of the Work, to protect workers, visitors, and the public from potential exposure to NOA.

The Design-Builder shall submit a Preliminary NMP with its Proposal as described in the Instructions to Proposers. The Preliminary NMP shall be updated to reflect any required Clark County DAQ permit approvals, and any other agreed-upon changes, and submitted to the RTC for acceptance prior to the commencement of dust-generating activity and consistent with the requirements of Section 21.7. The NMP shall also be updated throughout the duration of the project as changes or adjustments are made to the plan to respond to conditions encountered during the Work.

The elements of the NMP shall include, but not be limited to, the following:

a) Personnel exposure monitoring, as specified in Section 21.4, for compliance with OSHA 29 CFR §1926.1101, including discussion on the role of the CIH and ACP

b) Protection of all personnel who are on site, including employees of the Design-Builder, subcontractors, vendors, outside professionals (e.g., laboratories), and visitors from exposure to NOA
c) Sampling and Analysis Plan (SAP), as specified in Section 21.3.3, that describes monitoring locations and methods, sampling techniques, and analytical methods for personal air, perimeter air, and material usage characterization
d) Measures to prevent the migration of NOA outside the Project Right-of-Way due to construction activities
e) Measures to prevent migration of NOA by wind dispersion, stormwater dispersion, and vehicles leaving the Project Right-of-Way, or any other activity associated with the Work required by the Contract
f) Monitoring and site controls to verify that NOA is not migrating beyond the Project Right-of-Way
g) Process describing how sampling and analytical results will be used to make decisions to adjust mitigation measures, engineering controls, and NOA generating activities during execution of the Work
h) Integration of Clark County DAQ dust control requirements and discussion on the role of the Dust Control Monitor
i) Material, transport, and disposal procedures, as specified in Section 21.6.4, for stockpiling, storage, transport and management of surplus materials containing NOA
j) An Asbestos Dust Mitigation Plan (Dust Mitigation Plan) meeting Clark County DAQ requirements as specified in Section 21.5.3
k) Description of NOA material placement and use, including a description of how onsite materials will be characterized and used
l) Discussion on the role of the Geologist in the identification and field mapping of NOA, characterizing and interpreting rock units, and coordinating the stockpiling, transport, and placement of materials containing NOA
m) Blasting and crushing operation procedures that will be utilized to minimize the release of NOA, including the drilling for blasting and crushing and processing of soil and rock
n) Site control procedures, including placement of signage at all access points indicating presence of NOA and establishing parking facilities and decontamination methods for haul trucks and other vehicles exiting the Project

The Design-Builder shall plan, manage, and execute the Work in accordance with the measures described in the NMP and the requirements of the Contract. The NMP shall be updated as Work progresses and sample results are reviewed and analyzed. The Design-Builder shall adjust Work methods and operations as necessary to maintain NOA releases below the thresholds established by the Contract.

The NMP will describe the process that will be followed by the Design-Builder to assess the results of perimeter air monitoring and evaluate exceedances, if any, of the perimeter air threshold values as described in Section 21.5.1. The Design-Builder will describe how the monitoring information and decision making process will lead to positive compliance changes in the mitigation measures and activities if exceedances of the threshold occur.

The NMP will be prepared and signed by the CIH. Implementation of the NMP will be performed by the ACP working under the supervision of the CIH. The Dust Control Monitor will monitor all construction activities and take appropriate measures if any activities create visible dust in excess of the requirements as discussed in Section 21.5.3.

21.3.3 Sampling and Analysis Plan and Data Management

The Design-Builder shall develop a Project SAP that details all necessary field sampling components, including data quality objectives, standard operating procedures, sample locations, and analytical methods. The SAP shall be developed in accordance with the requirements of the *Uniform Federal Policy for Quality Assurance Plans (UFP-QAPP)* (EPA 2005a) and *EPA Guidance for Quality Assurance Project Plans* (EPA 2002).

The SAP shall include details on the following sampling activities:

a) Personal air monitoring, as specified in Section 21.4
b) Perimeter air monitoring, as specified in Section 21.5
c) Surfacing Material sampling, as specified in Section 21.6

An outline of the SAP shall be submitted with the Preliminary NMP included in the Proposal. The SAP shall be submitted to the RTC with the NMP and be accepted before potentially dust-generating and sampling activities commence. The SAP shall be updated if changes are required to achieve the objectives.

The Design-Builder shall develop and maintain a database for all NOA-related data collected as part of the Project. The database shall be designed to query various data requests, such as daily/monthly perimeter air data, personal air data, and rock/soil sample data. The minimum data reporting requirements for asbestos shall be met for all transmission electron microscopy (TEM) and phase contrast microscopy (PCM) data and shall be recorded using National Asbestos Data Entry Spreadsheets (NADES) or an acceptable equivalent spreadsheet format. NADES files for PCM and TEM are available for download at http://www.epaosc.org/site/doc_list.aspx?site_id=4525. The asbestos database shall be designed to capture the raw structure data associated with any TEM analysis (e.g., structure dimensions, mineral types), in addition to information on structure counts and concentration estimates.

21.4 PERSONNEL EXPOSURE MONITORING PROGRAM

As part of the NMP, the Design-Builder shall develop a Personnel Exposure Monitoring Program (PEMP) that describes the approach for protecting employees, subcontractors, and all other personnel visiting the site from the hazards associated with NOA. The PEMP shall include procedures on how the Design-Builder will advise everyone working on or visiting the Project that NOA was detected in rock/soil samples collected along the Phase II alignment area. Further, the PEMP shall describe the appropriate measures for protecting personnel from NOA exposure during all phases of Work. Protective measures shall include all work practices, engineering controls, and personal protective equipment (PPE) required by 29 CFR §1926.1101. The hierarchy of controls shall be employed by the Design-Builder in the following order: elimination/substitution, engineering controls, work practice controls, PPE. PPE is to be used only when other more preferred means are not feasible or in conjunction with other controls. The Design-Builder shall inform personnel of the protective measures it has implemented. The Design-Builder shall provide appropriate PPE and training in required procedures for all employees, subcontractors, and other personnel entering areas where respiratory protection is required. The Design-Builder shall provide the appropriate PPE to support 50 RTC and NDOT staff for the duration of the Project.

21.4.1 Engineering and Administrative Controls

The Design-Builder shall take appropriate measures to mitigate NOA exposure during all phases of Work by preventing/minimizing the generation of dust so that personal air monitoring results do not exceed OSHA's established time-weighted average (TWA) permissible exposure limit (PEL) or short-term exposure limit (STEL) for asbestos. The measures may include, but are not limited to:

a) Installing high-efficiency particulate air (HEPA) filtration system in trailers for workers handling NOA samples
b) Adjusting working hours to expected wind speeds and other exposure factors
c) Utilizing closed cabs with interior filtration systems equipped with HEPA filters or positive-pressure units for all construction vehicles and equipment on the Project
d) Controlling dust during all Work activities

In the event personal air monitoring results exceed the PEL or STEL, the Design-Builder shall re-evaluate work practices and engineering and administrative controls and employ PPE and decontamination as required under 29 CFR §1926.1101. Additional measures the Design-Builder shall take include, but are not limited to:

a) Maintaining site controls for areas where the additional PPE is required
b) Notifying all personnel working around areas of significant concentrations of NOA
c) Training affected employees on donning and doffing procedures for PPE
d) Additional engineering and administrative controls to mitigate NOA exposure are described in 17 CCR 93105 and 17 CCR 93106.

21.4.2 Personal Air Monitoring

The Design-Builder shall develop a Personal Air Monitoring Plan that satisfies all requirements as described in 29 CFR §1926.1101 to ensure worker health is protected. Personal air samples will be collected in accordance with OSHA Standard 29 CFR §1926.1101, Sampling and Analysis – Non-mandatory, Appendix B.

Details of the personal air monitoring shall be included in the Project SAP as described in Section 21.3.3. All personal air samples shall be analyzed by PCM in accordance with NIOSH Test Method 7400 (NIOSH 1994a). If PCM results are above the respective PEL or STEL defined in 29 CFR §1926.1101, the sample shall be analyzed by TEM in accordance with NIOSH Test Method 7402 (NIOSH 1994b) to determine the airborne asbestos concentration.

21.4.3 Asbestos Awareness Training and Dust Control Class

The Design-Builder shall provide asbestos awareness training for all personnel accessing the work site and maintain documentation and training records in accordance with 29 CFR §1926.1101(k)(9). Details of how the asbestos awareness training will be provided shall be included in the PEMP (Section 21.4). The asbestos awareness training shall be developed in accordance with 29 CFR §1926.1101(k)(9) and shall contain a minimum of 2 hours of course material. The Design-Builder shall provide the training to anyone that requires access to the Project area and maintain records throughout the duration of the Project. The training shall be updated and presented to workers annually to include new data, such as perimeter air and personal air monitoring data. The Design-Builder shall provide to the RTC a list of

everyone who completed the training in the NOA Post-Construction Report as described in Section 21.7.3.

In addition to the asbestos awareness training, all Project workers shall complete the DAQ and Environmental Management Dust Control Class, as described in DAQ Section 94.7.6 of the Air Quality Regulations. The class will include NOA-specific information.

21.4.4 Reporting

The Design-Builder shall provide personal air monitoring results to the RTC in accordance with requirements as described in 29 CFR §1926.1101. In addition, the Design-Builder shall provide summaries of personal air monitoring results to the RTC during monthly progress meetings. Any exceedances of the PEL or STEL shall be reported to the RTC within 24 hours, along with a description of the appropriate corrective actions taken.

21.5 OFFSITE MIGRATION

NOA may become airborne during Work activities. The Design-Builder shall take appropriate measures to prevent dust from becoming airborne and prevent potential airborne NOA from migrating off site. The Design-Builder shall sample and measure the quality of the air using the follow methods:

a) Perimeter air monitoring
b) Real-time dust particulate monitoring
c) Visual observations

21.5.1 Perimeter Air

The Design-Builder shall collect perimeter air samples to evaluate the efficacy of NOA mitigation measures employed for this Project. The perimeter air threshold, currently 0.002 structures per cubic centimeter (s/cc), is expressed in terms of PCM-equivalent (PCME) structures for this Project and was developed using a risk-based approach with an attenuation factor applied. The threshold may be adjusted in the future based on sample results from ongoing collection of pre-construction ambient air data.

21.5.1.1 Perimeter Air Monitoring Program

The Design-Builder shall develop a perimeter air monitoring program to collect and evaluate perimeter air samples to determine the effectiveness of work practices and engineering controls at preventing offsite migration of airborne NOA. The overall perimeter air sampling approach shall be developed in accordance with EPA SOP #2015, *Asbestos Sampling* (EPA 1994), with modifications as described in Appendix A of this Performance Specification and other project-specific modifications as necessary. The Design-Builder shall include details of the perimeter air sampling and monitoring in the Project SAP as discussed in Section 21.3.3.

Both sides of the Project Right-of-Way will be monitored for NOA through the collection of perimeter air samples along the Project Right-of-Way boundary. The exact placement of perimeter air monitoring devices along the Project Right-of-Way will be determined by the Design-Builder; however, their placement shall meet the following criteria:

a) The Design-Builder shall establish 2,500-foot Sampling Zones along the Project Right-of-Way. Each Sampling Zone will be represented by one Near Sample station and one Far Sample station. Near Sample means the side of the Project Right-of-Way closest to a residential community. Far Sample means the side of the Project Right-of-Way furthest from a residential community.
b) Prior to sample collection, the Design-Builder shall move the Near Sample and Far Sample stations within the Sampling Zone nearest to the construction activity that has the highest potential for creating dust. Once the sampling has started, the sample station shall not be moved.
c) The Design-Builder shall characterize the upwind and downwind air flow for the representative air being monitored (e.g., each side of the Project Right-of-Way).
d) The Design-Builder shall capture representative air flows within ravines and hilltops within each sampling area.
e) At a minimum, perimeter air samples will be collected when construction activities are taking place within the Sampling Zone. Once sampling has started within a Sampling Zone, daily samples shall be collected until construction activities are complete within the Sampling Zone. The Design-Builder may collect samples within the Sampling Zone, even if no construction activities are taking place, in order to collect data for project-wide comparison (Section 21.5.1.3).
f) All perimeter air samples will be collected over a 24-hour timeframe.
g) The location of the Sample stations will be reassessed and adjusted in cooperation with RTC and DAQ staff on a monthly basis and as changes in the Work or visible dust within each Sampling Zone occur to ensure that data collection is representative of each Sampling Zone.

The perimeter air monitoring program shall be in place prior to the commencement of potential dust-generating activity. All sampling locations shall be recorded using Global Positioning System (GPS) equipment. GPS points will be collected using Trimble® GPS handheld units, or equivalent equipment that meets the EPA's accuracy standards for geospatial data (EPA 2005b).

Dust or other suspended particulates in air may clog or overload the sample filter and reduce the ability to observe and characterize asbestos fibers on the filter. Sampling personnel shall adjust sample flow rates (e.g., lower flow rate) to avoid filter overloading as determined by the laboratory (see Appendix A for the range of acceptable flow rates).

21.5.1.2 Perimeter Air Analysis

All perimeter air samples shall be analyzed by PCM in basic accordance with NIOSH Method 7400, Issue 2, with the modifications as described in Appendix A. Ten percent of all perimeter air monitoring samples shall be randomly selected by the Design-Builder for analysis in basic accordance with TEM ISO 10312:1995(E), with modifications as described in Appendix A. In addition, any perimeter air monitoring sample that is above or within a factor of 3 of the perimeter monitoring threshold shall also be sent for analysis by TEM-ISO following the same analytical procedures as specified Appendix A.

Laboratories performing analysis of airborne asbestos by TEM and/or bulk asbestos by polarized light microscopy (PLM) analysis shall be accredited by the National Institute of Standards and Technology (NIST)/National Voluntary Laboratory Accreditation Program (NVLAP). This includes the analysis of NIST/NVLAP standard reference materials, or other verified quantitative standards, and successful

participation in two proficiency rounds per year each of bulk asbestos by PLM and airborne asbestos by TEM supplied by NIST/ NVLAP. Laboratories performing PCM analysis shall participate and be accredited in a national sample testing program, such as the Proficiency Analytical Testing Program (PAT) or the Asbestos Registry sponsored by the American Industrial Hygiene Association (AIHA).

In addition, the Design-Builder shall install real-time dust (aerosol) particulate monitors (RAMs) along the perimeter of the Project Right-of-Way to measure airborne dust particulates during the execution of the Work. The exact placement of RAMs along the Project Right-of-Way will be ultimately determined by the Design-Builder. Their placement shall correlate and be consistent with the placement described in Section 21.5.1.1, with the following exceptions:

a) Adjustments to RAM placement may be allowed if the corresponding perimeter air concentrations consistently fall below the thresholds
b) Placement of RAMs near activities that create the most dust and in areas nearest to residential communities and where recreational activities may occur

The RAM shall measure dust levels in air in units of micrograms of dust per cubic meter of air ($\mu g/m^3$). The RAM shall be portable and able to withstand the temperature extremes that exist at the Project and exposure to construction activities. The Design-Builder shall collect minimum three months of RAM data to establish background dust levels under pre-construction conditions. The background dust level will be reported to the RTC and used as a basis for establishing an initial dust threshold and triggers to warn of potential exceedances during construction activities. The Design-Builder shall modify the dust threshold by correlating the RAM data with perimeter air concentration data collected throughout the course of the project.

21.5.1.3 Perimeter Air Results

Perimeter air PCM results shall be made available to the RTC within 3 days of collection date. Results of perimeter air samples submitted for TEM-ISO analysis shall be made available 5 days thereafter. Analytical results for each Sampling Zone sample shall be compared to the perimeter air threshold, currently 0.002 PCME s/cc, in the following manner:

Project-wide Comparison – The running average of each Near and Far Sampling Zone station will be compared to the perimeter air threshold. The Design-Builder shall ensure that the running average for each Sampling Zone station does not exceed the perimeter air threshold at the end of the project.

Daily Comparison – Individual sample results for each Near and Far Sample will be compared to the perimeter air threshold. The following actions will be taken within the Sample Zone where results exceed the threshold:

a) 1st day exceedance: Design-Builder will employ additional dust control
b) 2nd day exceedance: Design-Builder will employ even more dust control
c) 3rd day exceedance: Design-Builder will modify Work practices
d) 4th day exceedance: Design-Builder shall stop Work until additional mitigation measures are agreed upon in writing by the RTC and implemented by the Design-Builder.

Because of the presence of NOA in the Project area, it is possible that offsite NOA could migrate onsite due to natural disturbances (e.g., wind), nearby anthropogenic activities (e.g., recreational use), or other sources that are not construction related. In this regard, the Design-Builder may invoke pre-construction ambient air data, perimeter air monitoring data for Sampling Zones where no Construction Activities are occurring, meteorological data, and/or upwind/downwind perimeter air monitoring comparisons to inform decisions on source attribution of perimeter threshold exceedances.

Exceedances of the perimeter air threshold shall be prevented with the use of mitigation measures established for each activity as discussed in the NMP. The Design-Builder shall notify the RTC of any exceedances by close of business on the day results are received and shall take immediate corrective action. Corrective action shall include modifications to the Design-Builder's operations and mitigation measures in order to prevent future exceedances. The RAMs shall be programmed to alert the Dust Control Monitor and the RTC of any real-time exceedances and the Design-Builder shall take immediate corrective action as described above.

21.5.1.4 Perimeter Air Results Reporting

Results will be presented in a format acceptable to the RTC and discussed at weekly progress meetings, summarized in monthly reports submitted to the RTC, and incorporated into the Public Outreach and Communication Plan, including the project website, as described in Section 4.0 Public Information Performance Specification. Data reports shall include maps, individual sample results, exceedances, and running averages for each Sampling Zone station.

RAM data shall be provided to the RTC on a daily basis with discussion on any exceedances of the threshold. RAM data shall also be included in the NOA Post-Construction Report.

21.5.2 MET Station Data

Five meteorological (MET) stations will be deployed by the Design-Builder throughout the alignment at select locations where excessive wind conditions are expected to occur. The following parameters will be recorded every 5 minutes: wind speed, wind direction, relative humidity, temperature, and barometric pressure. MET data will be recorded and used to adjust work practices and engineering controls as needed to ensure compliance with established threshold levels. MET station data will be provided real-time to the RTC and summarized on a daily basis. A summary of the results shall be included in the NOA Post-Construction Report.

21.5.3 Asbestos Dust Mitigation Plan

The Design Builder shall include an Asbestos Dust Mitigation Plan (ADMP) as a part of its NMP. Tolerance for the generation of dust during Work, with the exception of blasting, shall follow requirements as described in the Clark County Air Quality Regulations, Section 94.11. The Design-Builder shall maintain the project in a condition that will result in no more than 20% opacity using the Time Averaged Method or the Intermittent Emissions Method at the point of dust generation and zero visible dust at the Project Right-of-Way. As such, the Design-Builder shall employ appropriate administrative

and engineering controls to comply with these requirements during all construction activities, including drilling for blasting activities. Dust requirements for blasting are discussed in Section 21.5.3.1. The Design-Builder's Dust Control Monitor, as required by Clark County Air Quality Regulations, Section 94 – Permitting and Dust Control for Construction Activities shall monitor all construction activities.

The Design-Builder shall temporarily stop any Work activities that result in exceedances of the DAQ dust standard and make modifications to work practices and engineering and administrative controls as needed. The Dust Control Monitor shall record visual observations of dust, description of activities that generated dust, action(s) taken to prevent dust, and reporting procedures. The Design-Builder shall provide daily reports of dust control monitoring activities to the RTC and include in monthly reports.

The DAQ dust requirement as previously described at the Project Right-of-Way supersedes Ringlemann Chart and opacity measurements described in 17 CCR 93105.

21.5.3.1 Blasting

Dust generated during blasting activities shall be minimized by implementing mitigation measures, including, but not limited to, controlled blasts and dust suppression equipment, such as fog cannons and/or isolating misters.

The Design-Builder's application for a dust control permit will include a Dust Mitigation Plan that will describe in detailed the control measures that will be implemented for the control of dust emissions associated with the blasting of rock. This plan will be incorporated into and become part of the dust control permit and the NMP and will be enforced by the DAQ.

The plan must contain information explaining how the applicant will comply with following requirements:

a) When blasting occurs within 1,500 feet of a residential area, occupied building, or major roadway, and the wind direction is toward these structures, describe the dust control practices that will be employed to minimize dust emissions during blasting.
b) A general schedule as to the hours of the day blasting will occur must be provided.
c) Blasting is prohibited when the forecast is for wind gusts of 25 miles per hour or greater. Applicant must describe methods to be used to monitor weather and wind conditions prior to blasting.
d) Describe procedures for pre-watering and maintaining surface soils in a stabilized condition where drills, support equipment, and vehicles will operate.
e) Describe what materials will be utilized for stemming. NOA-containing soils are prohibited to use as stemming materials.
f) To minimize dust emissions during the blast, the applicant must employ blasting mats or utilize a DustBoss or equivalent water spray system. Describe which system applicant will use.
g) Describe methods for mitigating fly-rock from blasting operations.
h) Describe procedures for pre-watering the area around the blast zone floor.
i) Describe methods for stabilizing soils directly after each blast.
j) Provide notification to DAQ at least 4 hours prior to each blast.

The Control Officer for DAQ will review each element and approve the Dust Mitigation Plan as proposed or may add additional requirements based on the work practices proposed by the Design-Builder. DAQ will not impose an opacity limit on blasting activities for this project.

21.5.4 Equipment Accessing and Leaving the Site

The Design-Builder shall provide designated parking in areas that are paved or graded with a material free from NOA for a depth of at least six inches. The parking areas shall be clearly marked and have sufficient space for workers, employees and visitors.

All equipment within the Project Right-of-Way that may come in contact with NOA will be thoroughly washed prior to leaving the site. The Design-Builder shall develop an equipment washing protocol and inspection checklist to be used for all equipment leaving the work zone. All equipment shall be washed at designated stations with the use of wheel washer systems. There are no limits on how many washing stations shall be constructed. A sufficient number of washing stations shall be planned and constructed so as to minimize impacts to traffic flow.

Equipment washing may be done using non-potable water and discharged in a designated area. Once the washing station is no longer needed, the area where wash water was discharged will be covered with material containing <0.25% NOA or excavated to minimum 6 inches below ground surface and properly disposed of as discussed in Section 21.6. All interior cabs shall be cleaned with vacuums equipped with HEPA filters.

21.5.5 Public Access across the Site

Maintaining designated roads open to allow public access is required to fulfill commitments to the City of Boulder City, the Western Area Power Administration, the National Park Service, and the Rifle Range operator. In addition to other mitigation strategies, the Design-Builder shall place pavement or clean compacted gravel on these routes to reduce dust generated by crossing vehicles. The impact of dust generating activities by others, outside of the Project Right-of-Way, will be evaluated on a case-by-case basis.

21.6 MATERIAL USAGE

All soil and rock material excavated as part of the Work shall be used on site within the Project Right-of-Way to prevent the offsite transport of material containing NOA. The Design-Builder shall design the roadway to balance cuts and fills by adjusting the profile and/or steepening cut slopes and/or flattening embankment slopes to provide for sufficient area to bury and cover all material with NOA concentrations of 0.25% or higher. The Design-Builder shall refer to the Phase 2 Geologic Evaluation, Sampling and Testing for Naturally-Occurring Asbestos report, included in Attachment 1 – Design-Build Contract, Appendix 4 of the Contract Documents for background information on NOA concentrations within the Work area.

Material with concentrations of 0.25% NOA or higher shall be covered with paving or Surfacing Material, defined as soil and/or rock with NOA concentrations less than 0.25%. Surfacing Material shall either consist of a minimum three-inch thickness of soil or six inches of gravel mulch, both having an NOA concentration of less than 0.25%. The gravel mulch shall also meet the requirements included in

Appendix B. Gravel mulch shall be used as Surfacing Material on all 4H:1V or steeper slopes except for those areas to be re-vegetated or otherwise planted per the approved Landscape and Aesthetics Master Plan. It shall not be used in clear zones, medians and areas that will be subject to vehicular or pedestrian access by NDOT or other Government Entities for maintenance.

The Surfacing Material may be obtained from the soil and rock material excavated as part of the Work or from imported material meeting the requirements of the Contract Documents.

NDOT's Contractor will place up to 750,000 cubic yards of compacted embankment between Silverline Road and US 95 (Phase 1 Material) which is excess material not required for the Phase 1 Project. The Phase 1 Material will have an NOA content of less than 0.25%, and may be considered as a source of Surfacing Material.

The above requirements for Surfacing Material shall be superseded by the requirements specified for the Lake Mead National Recreation Area (LMNRA). Within the LMNRA, topsoil shall be salvaged and reused as surfacing material, regardless of NOA content in the topsoil. If there is insufficient topsoil available as surfacing material covering NOA material placed in embankments, then rock mulch may be used to supplement the topsoil.

Suitable rock material excavated as part of the Work with concentrations of 0.25% NOA or higher may be used to produce aggregate for concrete, asphalt pavements, base course and sub-base materials without restrictions on NOA content, provided that all other Contract requirements are met.

21.6.1 Surfacing Material Sampling

The Design-Builder's Geologist, as defined in Section 21.3.1, shall lead the effort in identifying and managing the NOA material characterization. The Design-Builder shall develop and implement a sampling program to verify that Surfacing Material and any other surface materials within the limits of construction are below the 0.25% NOA concentration threshold. The Surfacing Material sampling program shall be developed in general accordance with CARB Method 435 (CARB 1991). All samples shall be collected consistent with Section 5 a) only, where a single 3-point composite sample shall represent up to 1,000 tons of material. Surfacing Material sampling based on area (acres) or distance (miles) is not permitted for this Project. Details of the material sampling program shall be included in the Project SAP as discussed in Section 21.3.3. All sample results will be recorded in method-specific electronic deliverables and maintained in the Design-Builder's database as described in Section 21.3.3.

All Surfacing Material samples will be analyzed by PLM as described in CARB Method 435. Surface material shall not be placed until corresponding analytical results are known. Any material that contains greater than or equal to 0.25% NOA by PLM shall not be used on the surface. The Surfacing Material sampling program shall include details on how material will be sampled and segregated to ensure material with greater than or equal to 0.25% is not placed at the surface.

21.6.2 Material Sampling Reporting

Results of the material usage sampling (e.g., embankment fill, Surfacing Material) shall be provided to the RTC in monthly reports, including sampling location, maps, and material placement, and included in the NOA Post-Construction Report.

21.6.3 Exposed Rock Surface

The Design-Builder shall thoroughly wash all newly exposed rock surfaces to remove loose material. Wash water will be managed consistent with the requirements of Section 21.5.4.

21.6.4 Material Transport, Placement & Disposal Procedures

The NMP shall include material transport, placement, and disposal procedures that describe the manner in which the Design-Builder will plan, control, and execute the handling of all excavated material, including on site transport and placement. It should address the criteria which will be used to determine the placement of excavated material within embankment sections or stockpiles, dust suppression measures to be utilized during earthwork operations (including the handling of excavated rock and soil), and disposal of excess material within the Project Right-of-Way limits.

In the event that the Design Builder requests a Change Order to transport or dispose of material outside the Project Right-of-Way, and this request is subsequently approved by the RTC, the following conditions must be met:

Any materials transported off-site which have an NOA concentration equal to or greater than 1% will require a permit from the Southern Nevada Health District (SNHD). The SNHD is the local agency having jurisdiction over the transport of hazardous materials. The Design-Builder is responsible for obtaining and complying with an SNHD permit. Any transport of NOA material on City streets outside the Project Right-of-Way shall be considered off-site transport requiring an SNHD permit.

Excess excavated material transported to the designated City disposal area shall have an NOA content of less than 0.25% by PLM; therefore, it is not subject to an SNHD permit. Transport of NOA material within the Project Right-of-Way and between the Phase 1 and the Phase 2 projects is considered to be onsite transport.

21.7 SUBMITTALS

The Design-Builder will submit the NMP, SAP, ADMP, daily reports, monthly reports, and a NOA Post-Construction Report as illustrated in the following table:

Submittal	Date Due	Number of Copies
Preliminary NOA Management Plan	Submitted with Proposal	Refer to ITP2
Sampling and Analysis Plan Outline	Included with Preliminary NOA Management Plan	2
NOA Management Plan	Within 60 days of NTP	2
Sampling and Analysis Plan	Included with NOA Management Plan	2
Asbestos Dust Mitigation Plan	Included with NOA Management Plan	2
Respiratory Protection Plan	Included with NOA Management Plan	2
Daily NOA Summary Reports	COB following day during construction	2

Submittal	Date Due	Number of Copies
	phase	
Monthly NOA Summary Reports	Monthly during construction phase	2
NOA Post-Construction Report	Prior to Final Acceptance	2

21.7.1 Daily Reports

The Design-Builder will produce daily reports describing the procedures implemented due to NOA. Daily reports will include sample collection details, a description of weather, PPE used, the location and description of construction activities, compliance problems encountered, health and safety monitoring, results of dust control monitoring, and any deviations from planned activities.

21.7.2 Monthly Reports

The Design-Builder shall submit a Monthly NOA Summary Report to summarize:

a) Personal air monitoring results and any changes to NOA management due to personal air data.
b) Perimeter air monitoring results and any changes to NOA management due to perimeter air data. Perimeter air data shall be tabulated and analyzed for trends. Trend analyses of perimeter air results shall include Work activities performed, weather, and any additional factors potentially impacting perimeter air monitoring.
c) Changes to NOA management due to changes in site conditions or dust mitigation practices.
d) A description of materials that were derived from onsite sources and used for Work. All sampling and analyses will be included.

21.7.3 NOA Post-Construction Report

As a condition of Final Acceptance the Design-Builder will submit an NOA Post-Construction Report. The report will memorialize management of NOA during construction. The report will need to describe:

a) A description of the Work area, climate, vegetation, land use, and ecology
b) A description of bypass construction activities
c) A description of NOA monitoring activities
d) Results of NOA sampling
e) RAM and MET data
f) As-built plans that include location and concentration of NOA in placed material used within the Project limits
g) A description of employee monitoring during Work activities in areas with NOA
h) The location and construction of surplus soil and rock disposal repositories.
i) Laboratory reports
j) Project database
k) Inclusion of monthly reports

21.7.4 Public Information

Section 4 describes the performance specifications for community outreach. Materials produced for community outreach will include information on NOA management. Additionally, the Design-Builder shall publish all perimeter air data to the Project website as it is available. The data shall include daily perimeter air sample results and monthly trend analysis comparing the long-term running average to the established threshold.

21.7.5 RAM Data

RAM data collected by the Design-Builder will be submitted daily and summarized in the Monthly NOA Summary Report. The report will include tabulated data and analyses. Data analyses will include the calculation of a background dust level, trends in dust levels during Work, and determining when background dust levels have been exceeded.

21.7.6 MET Data

MET data collected by the Design-Builder will be submitted daily and summarized in the Monthly NOA Summary Report. The will include tabulated data and analyses. Data analyses will include precipitation events, wind rose, temperature averages, and any other conditions affecting NOA management.

21.7.7 Visual Observations

Visual observations during dust control monitoring will be submitted daily and summarized in the Monthly NOA Summary Report. The report will include exceedances of DAQ regulations and observations on Work activities which generated dust. The report shall include a description of activities that resulted in exceedances, when they occurred, duration, and corrective action taken.

APPENDIX A – MODIFICATIONS TO SAMPLE COLLECTION PROCEDURES AND LABORATORY ANALYSIS

Perimeter air samples shall be collected in accordance with EPA SOP #2015, *Asbestos Sampling* (EPA 1994), with the following modifications:

a) Each perimeter air sample will be collected over a 24-hour period on a daily basis. Air samples will be collected using a target flow rate of 3.0 liters per minute (L/min) resulting in a total sample volume of 4,320 liters (L). The sampling pump will provide a non-fluctuating air flow through the filter, and will maintain the initial volume flow rate to within ±10% throughout the sampling period. If at any time the measurement indicates that the flow rate has increased or decreased by more than 10% of the set flow rate, sample collection will cease and the sample will be voided. Sampling personnel shall adjust sample flow rates (e.g., lower flow rate) to avoid filter overloading as determined by the laboratory. However, in no case will a sample be collected at a flow rate lower than 1.0 L/min, since the linear flow velocity would fall below 4 centimeters per second (cm/sec). Flow rates shall not exceed 10.0 L/min.

Perimeter air samples shall be analyzed by PCM NIOSH 7400 with the following modifications:

a) The analyst shall count a minimum of 20 graticule fields. The analyst shall continue counting graticule fields until 100 fibers are identified or until the achieved analytical sensitivity is 0.00067 cc^{-1}. Based on the anticipated sample volume (4,320 liters) an examination of 100 graticule fields should result in an achieved sensitivity of 0.00011 cc^{-1}, but additional graticule fields may be required if the target sample volume is not met. The analysis shall stop after examination of 200 graticule fields, regardless of fiber count or achieved sensitivity.
b) All filter remainders shall be retained intact in archive for possible future analysis by TEM.

Perimeter air samples submitted for TEM analysis shall be analyzed in basic accordance with TEM ISO 10312:1995(E) (direct preparation) or ISO 13794:1999(E) (indirect preparation) , with the following project-specific modifications:

a) Prepared grids shall be examined under low magnification, recording only those structures that are PCME, where PCME is defined as any structure with a length greater than 5 micrometers (µm), a width of 0.25 µm or greater (no upper bound width restriction), and an aspect ratio of 3:1 or greater.
b) The analyst shall examine a minimum of 2 grid openings from each of two grids. The analyst shall continue examining grid openings until 25 PCME structures are recorded or until the achieved analytical sensitivity is 0.00067 cc^{-1}. Based on the anticipated sample volume (4,320 L) an examination of approximately 13 grid openings should result in an achieved sensitivity of 0.00067 cc^{-1} (assuming a grid opening area of 0.01 mm^2), but additional grid openings may be required if the target sample volume is not met. The analysis shall stop after examination of 2 mm^2 of filter (approximately 200 grid openings, assuming a grid opening area of 0.01 mm^2), regardless of structure count or achieved sensitivity.
c) The analyst shall record all asbestos types, including chrysotile, regulated amphiboles, and non-regulated amphiboles. In addition, the analyst should record the presence of non-asbestos fibrous mineral types (e.g., erionite), if observed; however, these structures should not be included in the number of countable asbestos structures.

d) All filter remainders shall be retained intact in archive for possible additional future analysis by TEM. Filters will be archived for 6 months after Final Acceptance or until release of performance bonds and retention.

APPENDIX B – GRAVEL MULCH

SECTION 610

DESCRIPTION

610.02.02 GRAVEL MULCH

If selected for use on the Project, samples and gradation analyses of gravel mulch shall be submitted to the RTC for approval. Gravel mulch shall consist of screened, broken or fractured, dense, angular, very hard to hard, durable rock, free of fines, and conforming to the following gradation requirements.

Minimum particle size: 1 inch

Maximum particle size: 4 inches

Gradation:	Sieve Size	% By Weight Passing
	4”	100
	3.5”	85-100
	3”	40-80
	2.5”	25-60
	2”	10-40
	1.5”	0-20
	1”	0-7

Color of the gravel mulch shall be approved by the RTC and shall match the color of the native rock removed during excavation operations on the Project.

The larger stones shall be well distributed and the entire mass of stone shall conform to the gradation specified. All material placed as gravel mulch shall be placed and distributed to ensure that there will be no large accumulations of either the larger or smaller sizes of stone.

Control of gradation and color shall be by visual inspection. The Design-Builder shall provide a sample of stone of at least 5 tons, meeting the gradation for each location where gravel mulch is used. Each sample shall be provided at the Project near the location where the gravel mulch is to be placed. The sample shall be used as a frequent reference for judging the gradation of the gravel mulch supplied and shall be in place and acceptable to the RTC before gravel mulch placing work begins.

Design-Builder shall maintain the gravel mulch until the Project is completed and any material displaced by any cause shall be repaired to the lines and grades indicated on the Design-Builder’s Plans. Periodic field testing will be performed by an independent testing laboratory retained by Owner. The RTC shall have the authority to select the sample of material to be tested.

Caliche stones or cement sands meeting the requirements of this section may be used as gravel mulch. Gravel mulch shall be competent, fully cemented material. Only caliche and cement sands designated as hard or very hard, as defined in the following table, shall be utilized. Moderately hard or partially cemented materials are not acceptable.

HARDNESS DESCRIPTION	TEST USING KNIFE AND/OR STANDARD GEOLOGISTS HAMMER
Very Hard	Difficult to scratch or break
Hard	Scratches leave only dust, requires many hammer blows to break
Moderately Hard	Crumbles with several hammer blows
Partially Cemented	Gouges readily with knife and crumbles readily with a few blows of a hammer

If Design-Builder obtains gravel mulch from a source outside the Project, Design-Builder shall test the gravel mulch in accordance with the Quality Management Plan and ensure that the material characteristics described above are met and are of a color acceptable to the RTC. Submit for approval 30 calendar days prior to the initiation of placement operations.

Filter fabric will not be required with gravel mulch installed on this Project. The minimum thickness of gravel mulch on this Project shall be 6 inches.

Pre-emergent: All areas to receive gravel mulch shall be treated with a pre-emergent herbicide as specified in Subsection 203.03.20 of these Special Provisions. Additional applications of pre-emergent herbicide shall be required in areas where subgrade has been distributed prior to the placement of gravel mulch.

610.03.06 GRAVEL MULCH PLACEMENT

Gravel mulch shall be placed at the locations and to the lines and grades shown on the Design-Builder's plans:

a) The surface to receive the gravel mulch shall be cleared of all vegetation and debris and thoroughly wetted to a depth of 6 inches. Existing vegetation shall be removed, including all roots.
b) Subgrade preparation:
    i. All surfaces to receive the gravel mulch shall be rolled with a steel-drum roller or a rubber-tired equipment to produce a smooth, firm surface free of loose dirt and debris.
    ii. Slopes (2:1 ±or steeper): The subgrade at the tops of slopes and the bases (toes) of slopes shall be finished with a wedge shaped key. The key at the base of all slopes shall be at least 6 feet wide with a minimum depth of 12 inches, or 2 times the depth of the gravel mulch, whichever is greater. The key at the tops of all slopes shall at least be 6 feet wide with a depth equal to the depth of the gravel mulch.

iii. Ditches: Ditches to receive the gravel mulch shall be excavated so that the finished grade of the gravel mulch matches the line and grade of the existing ditch. Material excavated during preparation of the subgrade of the ditch shall be placed in other embankment settings prior to placement there of gravel mulch. Edges of the ditch subgrade shall be neat and firm.

iv. Finished Grades: Where gravel mulch is to be installed adjacent to an existing soil surface or apron of a drainage facility, the finished surface of the gravel mulch shall be flush with the adjacent soil surface or apron of the drainage facility. Where gravel mulch is to be installed adjacent to a concrete or asphalt pavement surface, the finished surface of the gravel mulch shall be 2 inches below the finished grade of the concrete or asphalt pavement surface.

c) Placement: Gravel mulch shall be placed at the locations and to the thickness shown on the Design-Builder's Plans. The finished surface of the gravel mulch shall be rolled with mechanized equipment to produce a smooth and even appearance. Water shall be applied continuously during the placement operation to minimize dust. All finished gravel mulch surfaces shall be washed down with enough water to remove dust and fines without creating erosion problems, washed out areas, or excessive ponding. All walks, pavement surfaces, walls, and finished surfaces shall be washed down upon completion of the placement of the gravel mulch.

APPENDIX F

OCTOBER 21, 2014

PUBLIC INFORMATION MEETING

TRANSCRIPT

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NEVADA DEPARTMENT OF TRANSPORTATION
I-11 BOULDER CITY BYPASS
PUBLIC INFORMATION MEETING

Tuesday, October 21, 2014
Elaine K. Smith Center
700 Wyoming Street
Boulder City, Nevada

DEPO INTERNATIONAL - LAS VEGAS
REPORTED BY ANDREA N. MARTIN, CCR, CRR

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Boulder City, Nevada; Tuesday, October 21, 2014

5:29 p.m.

-oOo-

MS. MAXEY: Good evening. Wow. You guys are all ready for us. Thank you for coming out don't. We know you have busy schedules, and NDOT and the rest of our expert panel and our team here that we've partnered with appreciate your time to come out to learn about the asbestos findings and a little bit about the future project.

So before we get started, I do have a few introductions.

We did have Mayor Tobler here earlier, but he had to leave us to go back to work, so we appreciated him coming in for a short period of time.

We also have Dave Frasier, City Manager. Thank you. He's over here. As I acknowledge them, they're going to be on the side.

Scott Hansen, City of Boulder City.

Robert Hur, Assistant Director, Public Works, Henderson. Thank you.

Fred Ohene of RTC, Regional Transportation of Southern Nevada. Thank you for coming.

Mike Hand, Regional Transportation of

Southern nevada. Thank you for coming out tonight.

Tracy Larkin-Thompson. She is the deputy director for the Department of Transportation. Thank you, Tracy, for attending.

Steve Cooke will be doing the presentation tonight. He is our environmental chief.

And Tony Lorenzi, NDOT. He is the project manager for Boulder City Phase 1.

We have Greg Novak from the Federal Highway Department, FHWA, who joined us tonight.

And Del Abdabold (phonetic) of FHWA as well, Federal Highway Administration.

My name is Julie Maxey, and I am the public hearings officer for the Nevada Department of Transportation, and before we get started, I just wanted to go through a little bit of ground rules in what you'll be seeing tonight.

Steve is going to give us a presentation, and after the presentation, we'll be going through a question-and-answer session.

Because we've got such a large group tonight, I've got a mic here, so I'll ask you to come up and either form a line, or we'll just do five at a time, to state your comment or question, ask our panel or project managers, and they will be

answered by the expert available tonight.

I will do -- I do need to have you state your name prior to stating your question or comment, for our court reporter here tonight who will be taking down your comments and questions verbatim. I only have one court reporter, so she can only take one person at a time, so I ask for you to be courteous to your neighbors.

And also if you can limit your comments or questions to three minutes so that everyone will have a chance.

So with that, I'll turn it over to Steve Cooke, who will go through the presentation.

Thank you, Steve.

MR. COOKE: Thank you, everybody.

My name is Steve Cooke. I'm the environmental manager at NDOT, and we're here tonight to talk about the I-11 Boulder City Bypass project.

The purpose of tonight's meeting is to provide an update on the project itself, to discuss the findings of N naturally occurring asbestos, what we're calling "NOA," and then to discuss our study results in the MEPA reevaluation process.

For those of you who may not be fully

aware of the project, I'll be providing a little background information.

The Boulder City bypass project is an approximately 50-mile long, four-lane road access free road that is proposed to be constructed. It begins up here, near Henderson. It drops south, around Boulder City, and ties back in over here by the turnoff or exit for the Boulder City -- or, excuse me, for the Hoover Dam. It has three interchanges, one here near Rainbow Pass, one here at the intersection with US-95, and the one over here at the turnoff to Boulder City Dam.

It's going to be constructed concurrently in two different phases. The first phase will be constructed by NDOT, which will be referred to as Phase I. It's shown here in the green line. And then Phase II, which will be constructed by the RTC of Southern Nevada, is shown here by the blue line.

So let's start off and talk about what is naturally occurring asbestos. This is a natural occurrence, and it forms in flow rock as a result of geologic processes. Whether a manmade -- or man efforts can cause the fibers to be disturbed and become airborne, and if they're airborne, they can pose a potential risk by inhalation.

What I want to let you know is that this is the same type of asbestos that you and I might be familiar with, such as what you might find in insulation, refinings, or other forms.

Where does it occur? Right now, we know that it occurs in at least 35 to 50 states and in California specifically in 44 out of the 58 counties.

This map here shows all the known occurrences for naturally occurring asbestos. It's denoted with all the red dots, and as you will note, in California it's quite prevalent. It's also found in Alaska, Washington, Oregon. The Midwest, not so much, but it's quite pronounced in the Appalachians.

So a little closer to home, back in 2013, last year, Dr. Brenda Buck and her colleague Dr. Metcalf published a report which identified the presence of naturally occurring asbestos in and around Boulder City.

This figure here was taken from their report, and it shows several things. The yellow material here represents the soil or alluvium. The brown area represents rock or the mountains, and then each one of these individual white dots, including down here, the bypass -- or, excuse me,

the playa represents samples that Dr. Buck collected, and they showed to have the presence of naturally occurring asbestos.

So we found out about this occurrence in December of last year, and initially NDOT, in combination with Federal Highway Administration and the RTC formed what I would call our initial asbestos assessment team.

When we first heard about this, we were a bit overwhelmed. It's not something we were anticipating, and quite frankly, we struggled a little bit to figure out how to address it. It wasn't long before we realized we needed to bring in a lot of outside help, so initially we brought in the Volpe Center, and they're part of the U.S. Department of Transportation Center of Expertise.

Once we got them on board, we hired on some additional consultants in the form of environmental engineers and scientists. When Volpe -- the folks at the Volpe Center came onboard, they assembled what we're calling the "expert panel."

So what said -- our initial group of three, the RTC, NDOT, and FHWA, grew to a group of 12. Our expert panel included EPA, National

Institute of Health, Clark County Department of Air Quality. Our three consulting firms: Kleinfelder CDM Smith, Tetra Tech, and two entities from California, and I'll explain the relevance of these entities later on.

So our first task at hand was to conduct a site characterization of the soils and rock. So our environmental engineers and scientists -- they collected 611 samples at the surface and at depth as deep as 200 feet. These deeper depths correspond to the mountain cuts for the Boulder City Bypass located on that portion east of Boulder City. The samples with collected to determine if there was NOA and to what extent.

So this figure here shows a visual representation of where the samples were collected as well as what the results are.

The green dots represent non-detect or no asbestos was detected.

The yellow dots represent asbestos at concentrations less than a quarter percent.

The orange dots represent asbestos a quarter percent to 1 percent.

And the red dots are 1 percent or greater.

As you will note, the majority of the

alignment and the samples shows primarily green dots, and then the orange and red dots are primarily over here east of Boulder City, up in the mountains.

So to give you a little bit of an idea what these samples were, of the 611 that were collected, 597 showed concentrations of less than 1 percent. Of those 597, 406 were non-detect, 154 had concentrations of less than .25, 37 had concentrations of .25 to 1 percent.

Then we had 14 samples that tested above 1 percent. 13 of those 14 samples had concentrations of 1 percent to 2 percent, and we had one sample that tested at roughly 6.4 percent.

So based on that, we found that the higher concentration of asbestos is located west of Boulder City, in the foothills and in the mountains.

Okay. So now that we characterize the soil and the rock, we needed to take a look at the air, so we established 12 ambient air sampling points, and these monitors sampled the existing airs we own right now. We wanted to get an understanding of the pre-project conditions, and a lot of these sampling stations are located in public areas, residential areas, and outside the project area itself.

So this aerial photo shows the 12 locations. Five of those sampling locations are located on the western edge of the project, and the other seven locations, denoted by these blue circles, are the other seven locations.

So after four months of sampling, this is what we came up with. Over here, on -- over here, on the vertical axis of this graph, it shows the concentrations of asbestos. Along the bottom horizontal access, it shows the dates in which the samples were collected, and over here represents a legend for all 12 of the sampling locations.

So what this graph shows is that currently there's asbestos in the air, and it varies by location and it varies with wind patterns. So we characterize the air, we characterize the soil and rock, and then we thought, all right, let's figure out what the regulations are so we can determine what our mitigation measure might be and work those into our construction specifications.

I was a bit surprised when we found out there really are no regulations for naturally occurring asbestos. We looked at the federal level, and the EPA regulates asbestos but nothing for naturally occurring asbestos. OSHA regulates

asbestos, but that's for worker safety. Okay?

We looked then at the state level. The State of Nevada has no statutes regulating naturally occurring asbestos. Southern Nevada District Health -- they regulate asbestos, but it's strictly mainly for transportation and it's only when it's above 1 percent. And then Clark County Department of Air Quality regulates dust.

So at this point we were a bit taken aback, and we were kind of challenged to determine what our next step was.

Through the work of our expert panel, we were put in touch with the two California entities, California Conservation and CalTrans, and we found out they had been addressing naturally occurring asbestos in their construction projects for the last 10 to 15 years. And consequently, because of that, they've passed legislation on controlling asbestos in the projects.

We spoke to CalTrans, and then we contacted California Resource Board, and we found out, through them and their specifications, that they have a series of mitigation measures that were applicable to our project.

Based on that, we modeled our mitigation

measures after what was done in California, per CARB, which is the California Resource Board, and their asbestos practices.

So what I'm going to show you now are the seven mitigation measures that we're using to build our construction specifications for both Phase I and Phase II of the Boulder City Bypass. In essence, the whole idea is to control dust.

So first and foremost, is thoroughly wet the work area by all and every means. It can be through spraying, through hoses, through watering trucks. And the whole idea is to saturate the soil so that the asbestos isn't suspended. And when I say "thoroughly wet," I'm not talking a light sprinkle like you might be accustomed to seeing on most construction projects. This is saturating the soil.

Next up is reducing vehicle speeds. If you reduce the speed, you reduce the dust. Next up is reducing drilling excavation speeds. Both those activities tend to generate dust, and if you can control the dust, you have a very good chance of reducing the potential for asbestos.

Excavating and blasting -- that should be done during periods of low and calm winds.

Primarily, that occurs in the morning and in the evening.

So the theme here is dust control.

A few other items is avoid overfilling of trucks. For those of you may be familiar with construction, it's quite common for the haul trucks to be loaded to above capacity for the hauling material from Point A to Point B. The whole idea is to expedite the movement of materials. And in doing so, that access oftentimes falls outside the truck, and if that's the case for NOA, it has a potential for releasing that into the environment.

We know that the construction equipment for the project will be contaminated with naturally occurring asbestos, but what we want to do is contain all of that within project limits, so any equipment that leaves the project site will need to be thoroughly cleaned and washed so that we keep the naturally occurring asbestos within the project perimeter and we don't drag it out beyond that.

Last but not least, the surfacing material, which could be topsoil, landscaping material, or essentially anything that's not made of rock, concrete, or asphalt, is going to be levels of less than .25.

So you're probably wondering, well, that's fine, but how is it going to be managed? How are contractors going to be forced to comply with this?

We have several measures in place. The first off is the Clark County dust permit. For those of you who may not be aware, Clark County has some of the most stringent dust rules and regulations within the country, and the primary focus on the dust permit will be that at the project perimeter, no dust will be allowed to leave that perimeter.

Next up will be the RTC and NDOT, in conjunction with the contractor, will each have their own NOA compliance team, so the contractor will have their own team, and they'll implement measures to control naturally occurring asbestos. And then both RTC and NDOT will hire an independent team to make sure that they're in compliance.

We also have the implementation of the NOA management plan. That's going to be a plan that describes who, what, when, where, and how, to the point that we achieve compliance with the mitigation measures.

We are going to continue the ambient air sampling and we're going to introduce some perimeter

sampling. Once again, the ambient air sampling is to assess the existing air conditions, and then the perimeter air sampling will be used to assess the successful mitigation measures. So in the event we have a dust plume that leaves the site, we'll when able to assess how serious that was. Then we can talk with the contractor and let them know. Then they can adjust their construction practices accordingly so that they become in compliance once again.

Now I'd like to shift gears a little bit and talk to you about the NEPA reevaluation. A lot of you have expressed concerns for the need for a supplemental environmental impact statement. Under the Department of Transportation, they have a couple different options that they can exercise.

For the environmental impact statement, they can exercise -- or what we're exercising is looking at reevaluating or reassessing the conditions as a result of the discovery of naturally occurring asbestos.

If you're interested to find out the details there, you can look, under 23CFR, the code of federal regulations. But, in essence, it requires, in this case, us, NDOT, and RTC to conduct

studies to characterize both the soil and the air and determine what the extent of the potential impact might be as a result of the naturally occurring asbestos.

We've completed this process. We've characterized the soil. We've characterized the rock. We've characterized the air. And we've generated mitigation measures which we know have worked because they've been tried and tested in California.

So based on that, we feel confident that there are not going to be any significant impacts to the environment, and, consequently, it does not warrant the need for a supplemental environmental impact statement.

All right. So that concludes the presentation. We'd like to open it up to questions.

MS. MAXEY: Steve, we're going to take a few minutes to get our expert panel up here. While they are doing that, if anyone has a question or comment, we do have a stationary mic up here. So I'd like to invite you to come up and form a line. Or we can take you one at a time, whatever is most comfortable. We do need the mics in order for everybody to hear, so if you've got something that

you would like to say, I need to have you state your name clearly for the court reporter, and then our expert panel will also state their name prior to making the response and the affiliation that they're with.

MR. COOKE: So right now we have members from our expert panel. We have representatives from Volpe Center. We have represents from Tetra Tech, Kleinfelder, Clark county Department of Air Quality, and CDM Smith.

MS. MAXEY: Thank you, Steve.

We have our first question.

MS. KELLER: Hello. I'm Kathy Keller. I own a property in the townhouses at the edge of Henderson, coming out this way.

I had a few questions. In the spring in our whole valley, we have a lot of wind, three to four months worth of wind.

How do you plan to schedule the work with the wind?

MR. COOKE: That's a very good question, and I've been down here -- I live in Carson City, by the way -- several times when it's been windy, so I fully understand.

The wind is going to play an important

role in the construction of this project. On very windy days, it may just be that they can't construct.

There's going to be a certain threshold that will be allowable for construction, and if the natural conditions exceed that threshold, the contractor won't be able to construct because it's likely that the offsite conditions going through the project will exceed the conditions.

So no construction on very, very windy days.

MS. KELLER: There's a lot of windy days.

MR. COOKE: There are.

MS. KELLER: I have a couple other questions. Will they be tarping the trucks when they transport the excess, and where will the excess materials be dumped?

MR. COOKE: Targeting the tucks is to be determined by the contractor. Right now, the only requirement is that they don't over fill their trucks so that we have spill-out.

The travel speeds will dictate how much dust is generated, so if they're traveling and dust is coming off their trucks, they may be required to tarp the trucks.

And as far as excess material, there will be no excess material exported outside the project area.

MS. KELLER: Okay. Thank you.

MR. COOKE: You bet.

MS. MAXEY: Steve, before we get started, we neglected to introduce our expert panel. And I know this is a little bit of a new format for NDOT, so if we could go ahead and get them to introduce themselves.

MR. RANEY: My name is Mark Raney.

MS. MAXEY: If you could move closer to the mic.

MR. RANEY: Good evening. My name is Mark Raney. I'm senior environmental engineer with the U.S. Department of Transportation Volpe Center.

Volpe Center -- Volpe/Volpe Center -- we perform work for a lot of other state federal agencies. We're working under an interagency agreement with Federal Highway to provide technical assistance to naturally occurring asbestos.

I've been with Volpe for about 20 years. One of my areas of expertise is dealing with environmental assessment mediation, specifically with asbestos and NOA, provide work on projects in

support of Postal Service, Federal Aviation Administration, EPA, California Department of Substance Control, among others.

So I've been involved with dealing with NOA for quite awhile.

MR. ZEVITAS: My name is Zevitas. I'm also with the Volpe Center, and I've got 25-plus years of experience with environmental engineering, environmental science, environmental health. We're focused on exposure assessment, environmental cleanup and deconditioning for a variety of agencies under EPA Superfund program, DOE cleanup programs also FAA, Federal Department of Transportation. So asbestos control program, environmental program, radiation safety programs, and others. I'm also involved with doing exposure assessment work and characterization of indoor environments, including things like aircraft cabin environments.

MS. MAXEY: If you could put the mic a little closer, they're having difficulty hearing. Thank you.

MR. TISDALE: My name is Rob Tisdale. I'm with Tetra Tech. I am an analytical chemist, human health risk assessor, and air quality modeler. I've got about 20 years of experience working in those

areas, including Superfund risk assessments in several western states, as well as air quality in several western states, and I think that's all I've got.

MR. SURBRUGG: Hello, my name is Ed Surbrugg, and I work for Tetra Tech as well. I have five years' experience working with the state, working with sand and gravel mine reclamation, and that was kind of my area of expertise for many of the years, was as a soil scientist, was trying to put this land back to some productive re-vegetative use after mining.

So spent a good portion of years doing that, and then about ten years ago, started working with trying to figure out how to sample and characterize sites that had also asbestos as a component of their soil, and the number of samples and how you go about compositing samples and coming up with a very representative sample for that materials.

That's -- I'll pass it on.

MS. WOODBURY: My name is Lynn Woodbury. I'm with CDM Smith. I've got about 15 years of experience doing risk assessment, and the past 12 years other so I've been doing specifically asbestos

risk assessment, and so I know quite a bit about exposure assessment and toxicity assessment as well as the analytic methods that are associated with asbestos analysis.

MR. ERSKINE: Here we go.

Hello, my name is Bradley Erskine. I'm with Kleinfelder, and Kleinfelder conducted the site investigation for the Phase II portion of the project. I'm the geologist. I'm a Ph.D. from the University of California at Berkeley with a special in mineralogy. I've been a consultant in asbestos since 1985. I started off -- I owned and operated my own testing laboratory for asbestos and have been consulting ever since, and I'm here on this panel mainly because of my expertise in site characterization but also because of my experience in construction mitigation methods for fugitive emissions.

MR. RICHTER: I'm Chuck Richter, Clark County Department of Air Quality. I am a compliance supervisor, and my group are the dust compliance inspectors who will be making sure that they comply with their dust control.

MS. MAXEY: Thank you, panel.

I'm going to leave my mic up there,

because obviously that one is working better. We'll go ahead and continue with the questions.

MR. REID: My name is George Reid. I'm a Boulder City resident.

So I think the general gist of your narrative was, well, relax, we've got everything under control, but what is it that we should be worried about? I mean, we don't know anything. I don't know nothing about these minerals, how dangerous they are.

They're must be a record here, Boulder City, of the incidence of diseases provoked by this kind of stuff.

Have you looked in the medical records -- the city has been here since 1930 -- to see what problems this mineral can cause, even though it's not regulated?

MR. COOKE: We haven't looked into that, primarily the public health department is responsible for looking to that. Early on, when this NOA was discovered, we had heard that the health department had looked into that, and they had determined that -- based on a limited amount of data, they had discovered there were no health incidents above what would be considered average for

the rest of the country.

That's kind of secondhand information. It was -- it was never -- I never saw any direct proof of that, but that's what I had heard.

MS. KELLER: Sorry. Kathy Keller. I had thought of one other question.

Like I said, I own a townhouse at the edge of Henderson, and according to your maps, that looks like it's almost running over the top of the corner of some of those townhouses.

Do you need to purchase or will you be purchasing any properties to complete this bypass?

MR. COOKE: I don't believe that to be the case. All the right-of-way for the project has already been purchased or is in the process of being purchased.

MS. KELLER: So it's where the existing 95 is? It isn't wider where it goes into those townhouses? They both site right beside the highway.

MR. COOKE: No. The scale shown on these drawings has been exaggerated. It's there just to give the folks looking a pretty good idea of where the alignment of the project is.

MS. KELLER: Thank you.

MR. BUNCH: I'm Dan Bunch. I've lived in Boulder City 44 years.

I was interested in your comments that you weren't going to work when the wind wasn't blowing. I would suggest that your contracts not allow any work to be done during March and April, in particular, because it will be mowing very hard, almost all the time.

Thank you.

MR. COOKE: Initially, the construction won't begin until probably May. So we'll have several months of, I guess, understanding the local meteorology to determine how to assess the conditions next year during the March and April time frame.

MR. CRESISKI: Hello Cory Cresiski, southern Henderson. Three quick questions. I'll try to keep it concise.

You said that air monitoring was already ongoing, and the paper talked about a website. I was just wondering what that website will be and when that will be available when the monitoring is going.

No. 2, I was just wondering at what level of ambient air measures will work stoppage occur?

And No. 3, following up on the other gentleman's question, have there been studies in other cities or areas with elevated NOA that have shown increased lung cancer/mesothelioma?

MR. COOKE: I'll address the first question.

The air quality data that's been collected up to date -- it will be uploaded onto the project websites. We haven't got there yet because we just recently compiled it, so it will be forthcoming probably within the next two to four weeks.

And the second question you might have to repeat.

MR. CRESISKI: What level of ambient air measures would necessitate work stoppage?

MR. COOKE: Lynn Woodbury, would you mind addressing that?

MS. WOODBURY: Sure. This one is working okay? Everyone can hear me? Yes. Okay.

For the project, there have been established thresholds that will be enforced at the perimeter of the construction zone, and that concentration is .002, and so if there are concentrations that occur that exceed that threshold, there are implications for that with

respect to increasing mitigation, and at a certain point there would be a stop work that would occur until they could reassess and get the right mitigation measures in place.

MR. CRESISKI: At what point would that stoppage be? I understand .002 is increased mitigation. At what point will it be stopped?

MS. WOODBURY: The way that the current specs are written is after the fourth exceed-ance.

After the first, it would require additional mitigation, more water to be put down; the second, again, more enhanced mitigation. The third would be like a work slowdown, and then the fourth exceed-ance it would be a stop and it would be a reassess until NDOT and RTC would have an opportunity to work with the contractor to make sure that their mitigation measures are working.

MR. COOKE: All right. And could you repeat the third?

MR. CRESISKI: Sure.

The third was other areas that have increased NOA and their lung cancer/mesothelioma levels.

MR. COOKE: That hasn't been looked into. We did look around the country for input or data

from the other DOTs, to see what they had experienced. And, actually, the only information we found was directly related to the work that had been done in California, and we have adopted the CARB mitigation measures, and I can't speak for California itself, but I would imagine after 10 or 15 years of work, they feel quite comfortable with these mitigation measures; and, as a result, we plan on using those for the project.

So I really can't speak to what other states might have done.

MR. CRESISKI: Thank you.

MR. REDLINGER: My name is John Redlinger. I'm a resident of Boulder City for 25 years now.

Part of my -- I mean, you guys start off this presentation talking about asbestos. You have yet to say that it's unhealthy. I have seen studies, Nationwide studies, that said Boulder City is a very good place to live regarding lung cancer. I've seen no data. My wife has been in the medical field, worked at the hospital for 30 years, nothing.

So the impression that there's an issue regarding asbestos you guys are leaving on the table. I appreciate you're handing, in essence, dust. Okay? You're not really addressing the

health issue. You're just saying, "Let's just call it dust, and we will regulate dust, and avoid the whole question about whether or not there's a health issue."

Everybody is saying basically you don't have any data. Right? Is my understanding correct?

MR. COOKE: We don't any data showing potential health implications here for Boulder City.

As I mentioned previously, I'd heard that the health district had looked into this matter, and based on their limited data they concluded the issue that issues that might exist aren't any greater than existed nationwide.

And as far as any health implications, Mr. Mark Raney from Volpe can maybe help address that.

MR. RANEY: First, let me say the focus of our project has been in regards to making sure that there are no impacts to health to the public or work associated with the construction, activities taking place at the bypass.

The -- in regards to ongoing potential exposures or ongoing risks to the community, if there is one, that is outside of our effort, outside of our scope.

I understand your concern. It's definitely a very valid concern in terms of impression in terms of whether or not there is an ongoing exposure or risk. That's something that would need to be raised with your local public health authorities.

Our concern is making sure the construction activities themselves aren't generating or putting asbestos in the air that would generate a health concern to the workers or to the public, making sure that if asbestos gets in the air, it isn't getting off site.

MR. REDLINGER: But you have no data that says asbestos in the air is an issue.

MR. RANEY: Not for Boulder City. For other communities, you know, that may also have, you know, asbestos concerns. There's other various epidemiological studies that are being taking place in those communities. I'm not sure; there may be one taking place with UNLV, but that's hearsay. I really don't know the specifics in that regard.

MR. REDLINGER: There was an article, front page, Review-Journal, that talked about that analysis, and our health official looked at the data and basically said there wasn't anything, almost

like it was kind of made up in terms of there being an issue.

You know, I guess I hope that we are careful in terms of the image that we portray, and if it's -- and if there's not an issue, that we are clear to the public about that living in Boulder City is not a health issue.

MR. COOKE: As a follow-up to your comment and to Mark's comment, it's my understanding Dr. Brenda Buck from the university will be conducting another study, and I believe it's due out in roughly three or four years. And part of the focus of that study was to address health implications, and I believe it's specifically here in Southern Nevada. So, right now, there's no data, but in several years out, there probably will be data.

I don't know exactly what Brenda Buck's scope of work is, but I do recall seeing and reading that it is going to include a health component to it.

MR. REDLINGER: I guess my hope would be that it's open to people's review, you know, the data is basically out there and everybody gets to look at it and see for themselves whether or not

there's an issue or this is kind of a like hocus pocus thing.

That's all.

MR. COOKE: Thank you.

MR. HALEY: My name is Ross Haley. I'm a resident of Boulder City, been here about 23 years.

I'm really disappointed in your decision not to do a supplemental EIS and very disappointed in the EPA's list of mitigation measures as well as the ones that you presented because it seems to me that leaving all of those lists, mitigation measures, is to keep disturbance to a minimum.

This project includes a scenic overlook as a safety feature which was identified in the EIS, and that -- because of that scenic overlook, the amount of disturbance is going to be like about a million cubic yards of material larger than it needs to be if it didn't have a scenic overlook, and that's because the scenic overlook -- the only place they could put it was right in the middle of the largest road cut in the project, and it winds up being a very ugly place to build a scenic overlook because you are looking across the road and towards a lake that is receding to the point where you can barely see it anymore at the point where that scenic

overlook would be.

I don't know anybody that continues to support the idea that we need a scenic overlook in that spot, and we could reduce the amount of material being moved by approximately a million cubic yards if you did away with that feature, and not only is it a lot of disturbance that's unnecessary, but it's disturbance right in the areas where your sampling shows the highest concentrations of asbestos.

MR. COOKE: That is correct. The scenic overlook was a component listed in the EIS that was approved back in 2005. It was a mitigation measure that we're continuing to follow through with. It will result in additional excavation material in order to make space for people to pull off, and the primary purpose of the overlook is to look out and see Lake Mead. At the time, in 2005, Lake Mead had much more water than it does now, and it's -- who's to say in the future, provided we get the -- the normal precip, it will fill back up.

Along the lines of the additional material being excavated, that material will be entombed within the roadway prison itself, so when it's excavated and used for construction purposes, it

will not be exposed to the surface, and it won't create an additional exposure risk.

MR. HALEY: Originally they said that there was going to be about a million -- your balance was about a million cubic yards greater and that that was being taken to the Boulder City dump and was going to be used by the Boulder City dump. Has that changed?

MR. COOKE: It won't be used in the Boulder City dump. There will been a disposal area within the project limits that will accept the excess material, but it won't go outside the project itself.

MR. HALEY: And the mitigation that -- I mean, you said the scenic overlook was included as a mitigation feature, and the whole point of it being a mitigation feature was that it was a safety mitigation feature, because as people came over that hill, they would be confronted with this beautiful look across the lake of Lake Mead, and they would be inspired to stop along the highway and cause a safety problem.

And if you go up there -- and -- and -- but if you go up there and look at where it's going to be and look at the design, where it's basically

inside a road cut and looking down the highway and barely seeing a spec of water out in the far distance, you'll realize that's not going to happen. It's not going to cause people to stop there, and you can put up signs that say "No Stopping Area," and it would -- the project would be way cheaper. It would have less environmental impacts, and, I mean, just better for everybody, and so you need to take another look at that.

MR. COOKE: Yes. I would agree. So what I would suggest doing is making sure that you place your comments on your comment card -- it's the last page of your handout -- and submit that, and that will become record for the reassessment document.

Also, also, I wanted to bring up the fact that it's our opinion that the reevaluation is sufficient for this project. It still needs to be approved by the Federal Highway Administration. If they think otherwise, they could say "We disagree," and supplemental environmental impact statement might be required. We don't think that will be the case, but we have not made that decision.

MR. HALEY: Good.

MS. MAXEY: Thank you.

MS. CRESISKI: Hi, my name is Robin

Cresiski, and I'm a resident in Henderson. I'm very close to Boulder City. I'm also a biologist.

One of the things that I would encourage or like to make a formal request for is that the biological and public health information does get investigated before the project proceeds.

There was a study out of U.C. Davis School of Public Health in 2005 that did show increases in Mesothelioma and lung cancer in relation to the geographical proximity of these naturally occurring asbestos sites, and that makes me nervous because we live close. The wind carries into Henderson and the Las Vegas Valley, and so I feel like before we have that information about how much it's already impacting our public health to construct that and cause more asbestos to become airborne makes me very concerned.

So I was wondering if there was any chance for there to be that public health investigation to get that data before the project proceeds.

MR. COOKE: We will look into it, and if you could provide a source for your study, we would be very appreciative. If you could place that information on your comment, and as soon as the meeting is over, I'd like to speak with you on the

side --

MS. CRESISKI: Sure.

MR. COOKE: -- and get that information so we can start looking into it.

MS. CRESISKI: Sorry, one other question.

In terms of the air sampling -- so I notice that the sites for the air sampling were in the kind of perimeter area around where the construction was going to happen.

Are there going to be additional air samples taken from residential areas or places where wind from this area might go or only at those sites that were on the map?

MR. COOKE: Ed, would you mind addressing that, please.

MR. SURBRUGG: The dots that you see on the map now are current ambient air sample locations. After construction starts, we will be moving those, especially those in the construction zone itself because they would be in the way. So we are looking at relocating some of the ones that are -- like your site there, where you live, in Henderson, up to like NDOT's facility at Wagon Wheel or another public location in Henderson there, because on that site, at Railroad Pass, we do

realize that it's a different air shed, you know, that the wind blows a little different on that side of Railroad Pass as it does around the other parts, you know, of the project.

MR. CRESISKI: Sure. I just think that in addition to having the sampling sites where they are, to have them in places where the most people density are, you know, in a regional capacity, so in Boulder City, where people are living, or in that region of Henderson that is most impacted by the direct wind, it would be nice to have air sampling occurring in those areas where people who are not affiliated with the project or could be impacted by the project will be.

MR. SURBRUGG: Right.

MS. CRESISKI: And that, again, with the sampling that's happened already, it sounds like that information kind of gets downloaded and arranged and in a few weeks it will be put up, but if there are times when there's really high wind or higher levels, to wait a few weeks ago and find out, "Oh, four weeks ago there were some really higher levels, and I wish I'd stayed inside that day" is not as helpful for us as citizens.

And so if there's any kind of way that

that can be real-time data or that there could be air warnings that there's -- on days that are particularly bad, I feel like, as a citizen, I would really appreciate that to be considered as well.

Thank you.

MR. TISDALE: I'll just add a little bit more.

Part of what you're getting at will be covered by the perimeter air monitoring locations, and they will be approximately every half mile on both side of the right-of-way, and they will be collecting that every-day sample data; whereas, the stations that will be moved to the neighborhoods will be more reflecting the longer term ambient air-type data.

MS. CRESISKI: And will those ones on the half mile that are collecting daily -- will that information be available daily?

MR. TISDALE: No, because it needs to go to a lab and be analyzed and stuff, but as soon as it can be, it would be available.

MR. RANEY: If I could just add to that, there is currently no real time monitors available -- I mean, the technology's out there to be able to monitor asbestos.

When you're analyzing for asbestos, you're collecting for cross-filter. That filter is sent to a laboratory. They have to go through a preparation process, and then it's analyzed by somebody looking through a microscope and seeing, counting, and specifically recording what they're seeing under that microscope. It, unfortunately, is a longer analysis than when you are dealing with other hazards, so there is a time lag associated with it.

There are different analytical methods, and we are requiring use of the different analytical methods, where each one has a different benefit, and some can be turned around more quickly than others, and so we are tying to leverage that.

There's a number of air sampling that is going to be taking place. We're going to be using personal air monitors on the workers, to protect the workers, but we're also going to have the perimeter air monitors that you've heard about, and there's a threshold established for those based on making sure that we're not adding health impact, health risk, to the local population. And that's been established based on those concerns, as well as the ambient stations.

So the perimeters are more for use for

contractors, to make sure their mitigation methods are being effective and adjusted accordingly, where the ambients are going to make sure, in terms of the, quote, more independent sampling of what's taken and making sure it's not getting offsite and exposing the community.

Thank you.

MR. WESLEY: My name is Mark Wesley. I'm a business owner here on the divided highway.

I was told that the analysis takes four to five days to come up with a conclusion on the analysis, so we're talking at least a week, so if you have an unsafe situation, we won't know for at least a week, because most people don't work on Saturdays and Sundays, and then you have to go through your meetings, et cetera, on what you're going to do, and so you're probably talking ten days of risk exposure that could potentially harm people. Isn't that true?

MR. RANEY: As I mentioned, there's a number of different types of analytical methods. Phase contrast microscopy, PCM. That can be done more quickly. And that you can get a 24-hour turnaround on. Transmission electron microscopy, which is a more advanced form of analysis, does take

longer, and it's dependent on the analytical intensity you are trying to achieve.

So that's why we're staging our methods, so the perimeters and the personal samples are going to be analyzed first by PCM, phase contrast microscopy, so you get a quick turnaround, and just your protective controls for your workers and making sure that it's not getting off site.

If there's any exceed-ance with those methods, from what -- getting those results, they will then be reanalyzed by TEM as well and there's also be a portion randomly analyze by TEM in addition to PCM.

MS. MAXEY: We can't hear him.

MR. ZEVITAS: In addition, there is also going to be some site controls with real time instrumentation to look at dust, look at particulate matter, so that we can comply with the Clark County requirements.

That gives you a clearer idea that you are controlling the dust. If you are controlling the dust, you are also controlling the asbestos. There's a variety of tools at play.

MR. WESLEY: Appreciate your expertise. Thank you.

MS. HENDERSON: Jennifer Henderson. I'm a Boulder City resident.

I was tying to find it in the paperwork, and maybe I missed it.

What test did you do, like what kind of tests to determine how much asbestos was out here? I mean, obviously, I'm just going off of what Buck has.

Is it the same testing? Did you do it just like she did, or how did you do yours?

MR. RANEY: Dr. Buck, at UNLV -- she was analyzing her samples from a geologic research perspective, and I believe all her samplings, again, are obviously scanned, electron microscopy.

What we use -- what we were looking -- we not only look for the presence, we were looking to determine the concentration and levels of asbestos that was present, and we did a combination of polarized light microscopy as well as transmission light microscopy?

MS. HENDERSON: I'm not a biologist or anything. Is one better than the other?

MR. RANEY: They all have their benefits with regards to being able -- what levels they can see to what magnification as well as how they

visually interpret and see the structures, the fibers within the microscope. And since they each have different benefits, it's a good approach, what we utilize, to analyze a sample by a variety of methods to make sure you are capturing and understanding what's present.

MS. HENDERSON: And then when were you guys planning on starting, if everything is approved?

MR. COOKE: Right now, the construction is proposed to start in the April/early May time frame of 2015.

MS. HENDERSON: Thank you.

MS. MAXEY: Looks like we've got a couple more questions. Ladies first.

MS. VAL: Hi I'm Val from Henderson. I live right over here at the horse streets, and I noticed over there that you've got a water line going down Horsepower Cove Road. Is there anyone I can ask a question about above ground, below ground, next to the marinas, between the marinas, to the site? Where is that going to be located?

MR. COOKE: So your question is you want information about a proposed water line movement?

MS. VAL: Well, you've got a proposal up

there on the map for Phase I out there in Phase II, and it says you've got a temporary water line going to Horsepower Cove Road, which is down by the two marinas there.

I was wondering: Is that going to be above ground?

MR. COOKE: Oh, yes, okay. That's for temporary construction water.

MS. VAL: Right.

MR. COOKE: And it will be an aboveground, temporary line in place for approximately a three year time frame.

MS. VAL: Where at? Between the marinas? Which side of Lake Mead? Boat harbor?

MR. COOKE: That's still to be determined. The contractor who ultimately ends up building that will work with the park service to determine the best location.

MS. VAL: Yeah, because you've got the swim beach right there to the left. You've got the ski wall, so you obviously don't want to interfere with water skiers over there.

MR. COOKE: Yeah, those are very good points.

Preliminary discussions with National Park

Service -- they indicated they had the same concerns, and there was also noise concerns to assess as well.

MS. VAL: That is all camping through there.

MR. COOKE: Yes.

MS. VAL: Unless you go on the other side of the damn, but that's too far down for you to go to, so obviously that wouldn't make sense.

MR. COOKE: Right. So you have very valid points, and once the contractor is hired, he or she will end up having to address those matters.

MS. VAL: Okay. And then one more.

We've got a water tower over there on the other side of -- well, I guess between Railroad Pass, in our neighborhood, there's a water tank there on the hill. Are you getting water from there or are you going to go to the next nearest hydrant.

MR. COOKE: All the water will be acquired from within the project limits, so you won't see traffic going back and forth to -- you're talking about the tank on the north side of the highway?

MS. VAL: Yeah.

MR. COOKE: So the water will be derived from the hydrants.

MS. VAL: Okay. Which is going to be down on the other hood, because there isn't any there at all.

MR. COOKE: I'm not accustomed in terms of where hydrants are, but it's quite likely the contractor could install a hydrant specific for construction use.

MS. VAL: Right. Yeah, because we didn't want them going across our horse trails and the paved trail and the, you know, River Mountain Ranch states all --

MR. COOKE: There will be no construction traffic on the north side of the highway.

MS. VAL: Right. We were in -- for the first phase, we got that all realigned as well --

MR. COOKE: That's right.

MS. VAL: -- pushed over, and all that good stuff.

MR. COOKE: You are correct. We had a meeting specifically for that.

MS. VAL: Yes, we did. You were very nice. Thank you. I appreciate that.

MR. COOKE: You bet.

MS. VAL: Thanks.

I'm sorry. One else.

You know we're in a 17 year drought. How much water are we thinking this is going to take, and when you say you are not going to -- you are going to flood it, vehicles running through that puddled water -- you know we have the quagga muscle, and quite potentially they could be transporting that to other places. Those things are insidious. You know, we have to wash all the wheel wells. You have to wash all your boats. You have to dump all your life tanks. There is a real threat with that, and if you've got any puddled water -- and I know it sounds really stupid, but they do make us clean all of that with fresh water, even trailers and wheel hubs, everything.

So when you are doing that, are you going to have it where it is drawn away from traffic, or are you going to make sure it's totally soaked in before you how traffic to go through there?

MR. COOKE: The only traffic that will be going through there will be construction related, and the equipment that might leave the site will be thoroughly washed. It will be washed to a greater extreme than what you've observed for the quagga muscle.

MS. VAL: Fantastic.

MR. COOKE: I live up in Carson City. There's the same muscle up in Lake Tahoe. I understand your concerns.

MS. VAL: Thanks.

MS. MAXEY: Did you have a question? Sorry. I didn't mean to put you on the spot.

MR. THOMPSON: I'm the least likely commentator here. I've been in Boulder City for 26 days.

MR. COOKE: Could you state your name, please.

MR. THOMPSON: I'm sorry.

My name is David Thompson, and nobody in Boulder City knows that because I've been here only 26 days.

I didn't hear some of the earlier comments, so I don't want to ask questions or ask to discuss things, but I have this very strong impression that there's a very deep focus on mitigation at the site of the interruption of the earth, but I've heard very little comment about airborne issues.

I have an apartment here in Boulder City that has three big windows facing that dry lake down there, and I instantly -- that is in two days --

noticed the dust gathering on my polished furniture, and it reminded me of where I used to live in Florida, where the wind blows a lot.

And so I'd just like to ask -- I really don't have to have an answer. I'd just like to suggest that you look at the airborne issues to the degree that you've looked at the mitigation on the ground for the workers and all that stuff. I'm concerned about the people who live on the hill 5, 10 miles away with the big winds I hear about out here that I haven't experienced yet because I haven't been out here long enough for that.

That's really my only comment. I didn't hear anything about mitigation of airborne particles of asbestos, but I certainly have a lifetime of hearing about how bad asbestos is in the air, so I'd just like to suggest to you that some focus be placed on that, and I guess the only other practical suggestion is that maybe we should be monitoring the air in Boulder City in several places right away so we have a baseline to know what the chemical content is of the air in Boulder City over a period of time before we start sending it fresh air from the construction.

Thank you.

MR. COOKE: Thank you.

MS. MAXEY: Are you going to respond? You're okay with that?

MR. COOKE: I spoke with this gentleman earlier, and I want everybody to know that we're currently collecting air quality data. We've been collecting it since May. We're going to continue to collect it for the next three years.

The locations of some of those collecting devices may change once the construction starts, and there will be more monitors placed within the immediate vicinity of Boulder City.

The purpose of the mitigation measure is to prevent asbestos from becoming airborne, so that's why we haven't been talking about airborne asbestos, because that's --

MR. THOMPSON: That's the rule of unintended consequences.

MR. COOKE: Right.

That's our goal. So if we're achieving our goal, you won't be hearing about asbestos coming off of this project.

MS. MAXEY: Thank you, Steve.

Do we have any other comments or questions? We've had a lot of good feedback.

The reason why we're here tonight, obviously, is we want to solicit comments from the community. There is a comment sheet on the back of your handout packet. If you did not get one of these when you came in, please stop by the sign-in table and get one. You can also leave your comments at our website on NevadaDOT.com, and those will also become part of the permanent record.

We will be accepting comments until November 4th, so, you know, please, if you get home tonight, please take time to think about it. Any of your comments or questions become part of the permanent record and a part of the decision-making process, so we appreciate you coming out tonight.

Thank you.

(Proceedings concluded at 6:55 p.m.)

(Exhibit 1 was marked.)

-oOo-

STATE OF NEVADA)
COUNTY OF CLARK)

CERTIFICATE OF REPORTER

I, Andrea N. Martin, a duly commissioned and licensed court reporter, Clark County, State of Nevada, do hereby certify:

That I reported the taking of the I-11 Boulder City Bypass (NOA) public meeting, commencing on Wednesday, October 21 2014, at the hour of 5:29 p.m.; that I thereafter transcribed my said shorthand notes into typewriting, and that the typewritten transcript contained herein is a complete, true, and accurate transcription of said shorthand notes; that I am not a relative or employee of any of the parties involved in said action, nor a relative or employee of an attorney involved in nor a person financially interested in said action.

IN WITNESS WHEREOF, I have hereunto set my hand in my office in the County of Clark, State of Nevada, this 28th day of October, 2014.

_____
ANDREA N. MARTIN, CRR, CCR NO. 887

Nevada Department of Transportation

TRANSPORTATION NOTICE

Public Information Meeting

I-11 Boulder City Bypass

The Nevada Department of Transportation (NDOT), in cooperation with the Federal Highway Administration (FHWA) and the Regional Transportation Commission of Southern Nevada (RTC), will hold an informational meeting for the I-11 Boulder City Bypass project to present information concerning the presence of naturally occurring asbestos (NOA) within the project area.

WHEN: Tuesday, October 21, 2014, 4-7 p.m. - *Presentation at 5:30 p.m.*
WHERE: Elaine K. Smith Center (former Community College of So. NV)
700 Wyoming Street, Boulder City, NV

There will be a formal **presentation at 5:30 p.m.** followed by a question and answer session. This will be an open house format meeting where you can meet project representatives prior to and after the formal **presentation at 5:30 p.m.**
Additional information about this project is available at:
http://www.nevadadot.com/BoulderCityBypass/Phase_I.aspx and
http://www.rtcsnv.com/planning-engineering/rtc-projects/the-i-11-boulder-city-bypass/

HOW TO COMMENT:

- In writing or verbally to a court reporter at the **October 21, 2014 meeting**
- During the open comment session following the presentation
- By email to info@dot.state.nv.us (reference Boulder City Bypass in the subject line)
- Mail comments to Tony Lorenzi, Project Manager, NDOT, 1263 S. Stewart St., Carson City, NV 89712

Comments will be accepted through 5 p.m., November 4, 2014

REQUESTS FOR ASSISTANCE: Reasonable efforts will be made to assist and accommodate physically handicapped persons desiring to attend the meeting. Requests for auxiliary aids or services to assist individuals with disabilities or limited English proficiency should be made with as much advance notice as possible to Julie Maxey, NDOT Public Hearings Officer, at 775-888-7171 or email jmaxey@dot.state.nv.us.

Nevada Department of Transportation
I-11 Boulder City Bypass
Public Information Meeting
October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

PLEASE SIGN-IN

	Name Representing	Address City State Zip	Phone E-mail
1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	Bob Ingemer	306 Ridge Rd B.C.	
3.	Michele Eagleson	1811 Arapaho Way BC.	
4.	Marilyn Swanson	612 Ave G	
5.	Tom + Tina Hayes	403 Ridge Rd	
6.	Patty Vanderwal	1538 Irene Dr, BC 89005	
7.	Phil Vanderwal	" " " "	
8.	Russ Brengman	524 TARA CT BC 89005	
9.	Betty Kuncer	775 Heritage Vista Ave. Hend. 89015	
10.	Dorothy Helm	1455 Bronco Rd B.C.	
11.	Lynn Kleinman	200 W. Roehell Dr Henderson 89015	
12.	CHARLES M. BOOKER	1681 STIRRUP DR HENDERSON, NV 89002	702-524-7574
13.	Dennis Fagan	1666 Inverness Pl, BC 89005	
14.	JOHN BLEWETT	P.O. Box 61275 BLDR City 89006	
15.	Gene & Melinda Russell	598 Bermuda Dunes Dr. BC 89005	
16.	James & Kim Chitwood	1656 Silver Slipper Ave Henderson 89002	

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
Public Information Meeting
October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

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	Name / Representing	Address / City State Zip	Phone / E-mail
1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	Evelyn Kleinman	200 W. Rochell DR. Henderson, NV 89015	eckleinman@gmail.com
3.	Stephen Parnes	1598 Royal Troon ct. B.C. NV 89005	sjparnes@gmail.com
4.	Ann Backstrom	6380 S. Polaris.	7027362936abackstrom@kbinternet.com
5.	Jennifer Henderson	1324 Ramona Lane BC NV 89005	dhjenhen@yahoo.com
6.	Toshi Yoshida	536 8th St BC NV 89005	
7.	Kathleen White	505 Lake Winnebago Ln	
8.	Kelly Wallace & Jason Wallace	648 Del Prado Dr BC 89005	
9.	GREG LANGLEY & Becky TRUDEAU	1318 Esther Dr, BC NV	
10.	Robin Cresiski	1093 Elation Lane #103	robin.cresiski1@gmail.com
11.	Michael C. Leighton	1691 Quarter Horse Dr, Henderson	702 2709377
12.	G Lee	Boulder City NV 89005	
13.	DAVID TAYLOR	1634 COWBOY CANYON PLACE HENDERSON, NV. 89002	702 685-3145 DJTAYLOR283@COX.NET
14.	Jill Lagan	465 Nevada Way BC	jill@bouldercitychamber.com
15.	Charles Wiesenborn	1410 Stacey Lane BC	—
16.	Rob Serrano	515 Northridge Dr.	

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
Public Information Meeting
October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

PLEASE SIGN-IN

	Name Representing	Address City State Zip	Phone E-mail
1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	TONY LORENZI	1263 S. Stewart, Carson City, NV	775-888-7317 TLorenzi@dot.state.nv.us
3.	DALE KELLER	1263 S. STEWART ST. CARSON CITY, NV	775-888-7603 DKELLER@DOT.STATE.NV.US
4.	Chris Young	1263 S. Stewart St. Carson City, NV	775-888-7657 cyoung@dot.state.nv.us
5.	SCOTT HANSEN	401 CALIFORNIA	702-293-9233
6.	E.A. BARBY	630 ARIZONA ST	702 858 0270
7.	ROBERT LINGE	537 CHERRY STREET BOULDER CITY	702-293-6886
8.	PHIL & SUE CARR	402 ANTIGUA WAY	702-294-2456
9.	John Heinle	1621 Turf Dr. Hend	702-564-8634
10.	Jessie Stegmeier	USBR	702-293-8268 jstegmeier@usbr.gov
11.	Gerard Ramalho	KSNV NBC	702-657-3150 news@mynews3.com
12.	Judy H. Moore	1626 Indian Wells Dr BC	702-294-0096
13.	Jana & Jim Douglass	1436 Pueblo Dr BC	702-293-5245
14.	VINODH NAIR	1600 PARADISE DESERT AVE HEND NV. 89002	702-476-6437
15.	LARRY Buckholder	529 Utah BC 89005	702-293-7377
16.	Barbara Gaca	75 Tower Mustard Ct HD 89002	702-566-5071

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
Public Information Meeting
October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

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	Name / Representing	Address / City State Zip	Phone / E-mail
1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	ANN HOUGTON	911 W CYPRESS DR HENDERSON	702 271-1909
3.	KATHY KELLER	1110 SLATE CROSSING #102 HENDERSON	702-736-3155
4.	Phil & Helmi Merkley	2660 Natalie Ave. L.V. NV 89121	p1merkley@outlook.com
5.	Mary Beebe & Bruce Adams	P.O. Box 61474 Boulder City 89006	
6.		1099 Endeavor Way BC 89005	702 406 0830
7.	MARK ANDERS	1316 MARTHA DRIVE B.C. 89005	manders@homemail.com
8.	ROBERT HERR	CITY OF HENDERSON 240 WATER STREET, HENDERSON, NV 89015	ROBERT.HERR@CITYOFHENDERSON.COM
9.	JP WOYTON	6795 EDMOND ST, STE 150, LV, NV 89118	(702) 789-2016 JP.WOYTON@PARSONS.COM
10.	BILL HAUGH	P.O. BOX 61888, BOULDER CITY, NV 89006	703-235-5387
11.	Dominic Torres	832 Robinson Lane	702 293 6017
12.	Maureen Richard	" " "	" " "
13.	Ross Haley	1201 Ave K Boulder City	702 379 7921
14.	Jonathan Lehman	6390 E. Polaris Ave	702 736 2956
15.	Brad Parker	1311 Elsa Way	
16.	Wanda Parker	1311 Elsa Way	

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
Public Information Meeting
October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

PLEASE SIGN-IN

	Name Representing	Address City State Zip	Phone E-mail
1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	MARIO GOMEZ, NDOT	123 E. WASHINGTON AVE L.V. 89101	702-385-6502, mgomez@dot.state.
3.	Paul Cuj	5246 Soledad Summit Ave, LV 89139	702 417 5834, Batstg@gmail.com
4.	Roger & Mary Rose	2401 gold Camp St. Henderson, 89002	702-565-5920
5.	Robert Wojnicki	2458 Aladdin Lamp St Henderson 89002	702-497-2440 uziqoinc@aol.com
6.	Emily Lewis	540 W. Horizon Ridge Hend, NV 89012	luckyem.nevada@gmail.com
7.	TRACY MARTIN	123 E Washington Ave LV 89101	
8.	RUSTY MCCLAIN	1700 SAINT ANDREWS CT BC 89005	702-293-6787
9.	Jerry Truax	939 Texas Brand Ct. Henderson 89002	702-456-0139
10.	T. HARTMAN	934 VISTA LAGO WAY BC 89005	
11.	R.J. Johnson	948 Keys Dr. Boulder Cit, NV 89005	702-293-5273 rjjonson@aol.com
12.	Heidi Grigg	644 Ave. K, Boulder City, NV 89005	702-469-6834 hhgrigg@yahoo.com
13.	H. Wells	Henderson NV 89015	
14.	Steve Stivka		
15.	Sean Sever	NDOT	7757201427
16.	Charlene Blackwell	132 Forest Ln	702 293 7733

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
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October 21, 2014
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1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	David L. Magaw	1433 Rawhide Rd.	702-293-1531 Joda1957@aol.com
3.	Jim Amstutz	790 Los Tauis Way, BC	702-497-4565 atenmm@cox.net
4.	E.J. Wesolowski	464 W. Cheery Phoenix, Az 85013	
5.	Robert K. Shackleford	1630 Broadmoor Circle B.C.	702-596-7382
6.	Ken Hiler	1886 Sheer Paradise Henderson NV	
7.	Becki Dunn	665 Bighorn Creek St Henderson NV 89002	
8.	Jim Parsons	1409 Garnet Place BC NV 89005	702 622 0246
9.	Sami Yousuf	123 E. Washington Ave Las Vegas NV 89101	702 385-6500
10.	Gary Seabrooky	1632 Glass Pool Ave 89002	
11.	Bill DeSantis	1443 Bronco Rd. 89005	702 245-6287
12.	Ken MacDonald	300 S. 4th St #1500 Las Vegas NV 89101	702 383 8895
13.	Chris Benka	3228 Channel 8 Drive, 89109	702 604-3102
14.	Sami Alhwayek	123 E Washington	(702) 279-0073
15.	Brenda Warner	7405 Enchanted Hills Ct 89129	bwarner@blm.gov
16.	Julian + Marita Rhinehart	1127 Seno Ct BC 89005	(702) 250-4046 / JulianR@cox.net

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
Public Information Meeting
October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

PLEASE SIGN-IN

	Name Representing	Address City State Zip	Phone E-mail
1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	Chuck Richter - CC Air Quality	4701 W. Russell Rd. Las Vegas, NV	richter@clarkcountynv.gov
3.	Enoé MARCUM - WAPA	P.O. Box 6457, PHX., AZ 85005	602-605-2422 marcum@wapa.gov
4.	Randy Weise - NDOT		702 526 6005 rweise@dot.state.nv.us
5.	Tony Scaggiuri	1410 Monterey Dr - BC 89005	
6.	LEE MOSES	720 MARINA DR. BC. 89005	LEE.MOSES40@YAHOO.COM
7.	CARL MURPHEY	813 Lake Hill	
8.	Tony Illia	123 E. Washington Ave., Las Vegas, NV	tillia@dot.state.nv.us
9.	Ron Starr	568 Lake Mohicun BC	702-460-7916
10.	JEFF Coleman	1116 ESSEX AVE Henderson NV	702-289-3755
11.	Kathleen Kimball	1403 Garnet Pl BC 89005	kvkimball@embarqmail.com
12.	RAY HERWIG	7150 Plaid St. Las Vegas, NV 89119	ray.herwig@GEWEBRA.com
13.	DAN BUNCH	PO Box 60491 B.C., NV 89006	
14.	Robert SEWARD	508 DON VINCENTE	702-293-3890
15.	Stephen Paredes	~~8872~~ 8872 S. Eastern Ste 220	702-387-4941
16.	Diana Bossard	804 Robinson Lane Boulder City	dbinbc@cox.net

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
Public Information Meeting
October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

PLEASE SIGN-IN

	Name Representing	Address City State Zip	Phone E-mail
1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	DAVID T. THOMPSON	873 DELREY DRIVE BOULDER CITY NV 89005	DAVID@TNDSG.COM
3.	MARK D. WATSON	1420 NEVADA HWY	(623) 340-2900 MARKDWATSON@MSN.COM
4.	JASON GROENDYK, WAPA	615 S. 43rd Ave Phoenix AZ 85005	602-605-2525 groendyk@wapa.gov
5.	Bob. Nuley	1317 Monterey Drive	
6.	Randy W. Bloecker	893 Del Sol Dr Boulder city nv	89005
7.	Darlene Looney	271 Big Horn Drive Boulder City NV. 89005	
8.	Steven Farinella	516 Birch St Boulder City NV 89005	steve.farinella@cox.net
9.	S. Aldrich	511 Lake Havasu Ln. B.C. 89005	702-321-6401
10.	Frank Achuff	961 crescent Falls	702 672-2880
11.	Jon Lee	1010 Industrial Rd	206-291-5315
12.	BRAD HARDENBROOK	NDOW, 4747 VEGAS DRIVE, LAS VEGAS, NV 89108	702-486-5127 x 3600 bhardenbrook@ndow.org
13.	Matthew Lax	27617 Nugget Dr. #5 Canyon Country CA 91387	661-252-2393 matthewlax@juno.com
14.	Norman Keele	503 Ville Dr Boulder City 89005	
15.	Roger Tobler	1007 Providence Ln BC NV 89005	RLT8@MSN.COM
16.	Vicki & Kevin O'Keefe	612 VALENCIA Dr. BC.	CHINOVIC@AOL.COM

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
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October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

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1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	BRADLEY ERSKINE	401 MARINA PLACE, BENICIA CA 94510	707-738-4917 BERSKINE@Kleinfelder.com
3.	STEVE COOKE	1263 S. STEWART St, Carson City NV 89701	775-888-7686 SCOOKE@DOT.STATE.NV.US
4.	Jim Gallegos	4860 G.S. Blvd; Carson City, NV 89703	775-883-2583 gallegosja@cdmsmith.com
5.	Ranya Botros, NDOT	123 E. Washington Ave., Las Vegas, NV 89101	702-385-6504 rbotros@dot.state.nv.us
6.	J. Edward Surbrugg	7 West 6th Ave. Ste 612, Helena MT 59601	406-459-0881 edward.surbrugg@tetratech.com
7.	ROBERT TISDALE	216 16TH ST. SUITE 1500, DENVER CO 80202	303-312-8843 ROB.TISDALE@TETRATECH.COM
8.	LYNN WOODBURY, CDM SMITH	555 17th ST., STE 1100, DENVER, CO 80202	303-383-2382 WOODBURYL@CDMSMITH.COM
9.	Abdelmoez Abdalla	705 Plaza st.	775 687-1271
10.	Christopher Zevitas	55 Broadway, Cambridge, MA 02142	(617)494-3611 chris.zevitas@dot.gov
11.	Mark Raney	55 Broadway, Cambridge, MA 02142	617-494-2377 mark.raney@dot.gov
12.	Ned Othene	600 Grand Central Pkwy Ave, LV NV 89106	(702)676-1725 Othene@rtcsnv.com
13.	GREG NOVAK	705 N PLAZA ST. CARSON CITY NV 89706	775-687-1203 greg.novak@dot.gov
14.	Mike Hand	600 S. Grand Central Pkwy LV, NV 89106	702-676-1612 handm@rtcsnv.com
15.	Sue Christiansen	" " "	702-676-1891 christiansens@rtcsnv.com
16.	Claudia Magana	100 N. City Parkway Ste 750 LV, NV 89106	702-553-9814 claudia@ffwpr.com

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
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October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

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1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	Ray Marshall " "	600 S. Grand Central Pky LV, NV	702 730-3317. wmarshall2@dot.state.nv.us
3.	Mulari	1581 Arabian Dr. Henderson 89002	GVJetSkier@aol.com
4.	Gail Behrns	1691 Quarter Horse Dr. Henderson 89002	gailbehrns@hotmail.com
5.	Sharon Lazar	705 KENDALL LANE, B.C 89005	—
6.	Bob Beutler	700 Park Street, B.C. 89005	bobbeutler@aol.com
7.	Commissioner Mary Beth Scow	500 S. Grand Central Pkwy, Las Vegas	mbs@clarkcountynv.gov
8.	Jennifer (Sheldahl) Haag	718 Park St. BC.	jennhaag44@cox.net.
9.	RON HARGETT	1550 Mustang HD 89002	—
10.	Kate Yoshida	536 5th St Boulder City	yoshida.kate@gmail.com
11.	Mark Lehman	808 Buchanan Blvd Ste 115-116 Boulder City NV	mxlehman@yahoo.com
12.	HOWARD ROSS	1110 SAN EDUARDO AVE HENDERSON NV	—
13.	RON SCHWARTZ	1290 W. HORIZON RIDGE PKWY, HENDERSON, NV	roundell@cox.net
14.	RICHARD PITTRY	558 JASPER WAY BOULDER CITY	
15.	MICHAEL VLAOVICH	940 WILD WEST DR. HENDERSON	Vlaoarch@cox.net
16.			

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
Public Information Meeting
October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

PLEASE SIGN-IN

	Name Representing	Address City State Zip	Phone E-mail
1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	BRYAN McDANIEL, NEVADA LOGOS, INC	1280 TERMINAL WAY #26 RENO NV 89502	775-323-8787 bmcdaniel@INTERSTATELOGOS.com
3.	Freeman Freitag	421 Ash, SC.	702-293-6007
4.	Sherry Pantucci	2519 Vegas Vie Dr. Henderson, NV 89002	702-452-8122
5.	RICK VELOTTA	LVRJ	
6.	RICK ATKINSON	400 LAKEVIEW BC	702 293 0414
7.	Greg MUCARI	1581 ARABIAN DR. Henderson 89002	MUCARI6@RITE.RR.COM
8.	Martin Einert	110 Wyoming St B.C. NV 89005	
9.			
10.			
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16.			

Thank you for participating

Nevada Department of Transportation
I-11 Boulder City Bypass
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October 21, 2014
Elaine K. Smith Center, 700 Wyoming St., Boulder City, NV

PLEASE SIGN-IN

	Name Representing	Address City State Zip	Phone E-mail
1.	JULIE MAXEY, Nevada Department of Transportation	1263 S. Stewart St., Carson City, NV	775-888-7171, jmaxey@dot.state.nv.us
2.	Greg Davis	1005 Wyoming st Boulder City, NV 89005	702 566 5301
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16.			

Thank you for participating

I-11 Boulder City Bypass
Public Information Meeting
Presentation at 5:30 p.m.

Tuesday, October 21, 2014
4 - 7 p.m.

Elaine K. Smith Center
700 Wyoming Street
Boulder City, NV

Brian Sandoval
Governor

Rudy Malfabon
Director

Nevada Department of Transportation
1263 S. Stewart Street
Carson City, NV 89712

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Nevadadot.com

Traducción disponible en español.

ALL INFORMATION PRESENTED IS PRELIMINARY AND SUBJECT TO REVISION

October 21, 2014

WELCOME:

Thank you for attending this informational meeting regarding the I-11 Boulder City Bypass project to present information concerning the presence of naturally occurring asbestos (NOA) within the project area.

The Nevada Department of Transportation is conducting an open-house format meeting from 4 - 7 p.m. Project representatives will give a brief presentation beginning at 5:30 p.m. that will be followed by a short open comment period from the audience.

There will be displays around the room describing the proposed project and project representatives will be available. Please take this opportunity to ask questions and discuss the project with them.

During this meeting, as well as any public meetings conducted by NDOT, we are seeking your comments. There are several ways you may give us your comments for the public record. Exhibits you wish to submit as a part of the public record of this project will be accepted.

First: During the open-house portions of the meeting, you may make an oral statement to the court reporter. Comments you make during the audience comment period following the presentation will also be recorded for the public record.

Second: You may fill out the comment form attached to this handout and deposit it in the comment box or give the completed form to one of the project representatives.

Third: The public meeting record will remain open for two weeks following this meeting. If you would prefer to write a letter or mail your completed comment form and any exhibits, these will become part of the official transcript of the proceedings if mailed to **Tony Lorenzi, P.E., Project Manager, Project Management Division, Nevada Department of Transportation, 1263 South Stewart St., Carson City, Nevada 89712. Comments will be accepted until 5 p.m., November 4, 2014.**

Fourth: You may e-mail your comments to tlorenzi@dot.state.nv.us Please reference the project in the subject line. E-mail comments will also be accepted until 5 p.m., November 4, 2014.

Thank you for attending this informational meeting and for giving us your comments.

Sincerely,

Tony Lorenzi, P.E.
NDOT, Project Manager

Boulder City Bypass Project
Frequently Asked Questions

Q: What is Naturally Occurring Asbestos?
A: Naturally Occurring Asbestos (NOA) refers to asbestos that is present naturally in soil and rock, as opposed to asbestos that was commercially mined and applied to building materials. NOA is found in many places in the United States and is present in at least 44 of California's 58 counties. When found, the amount of NOA ranges from less than 1 percent up to 25 percent concentration or more. Natural weathering and human activities may disturb NOA-bearing rock or soil and release mineral fibers into the air, which can result in adverse health effects if inhaled. However, measures can be taken to minimize the release of these mineral fibers.

Q: What were the test results and how much NOA is in the area?
A: Independent environmental engineering firms obtained and tested rock and soil samples from both NDOT Phase 1 and RTC Phase 2 project areas at depths ranging from ground level to more than 200 feet below the surface. Samples were tested to determine if NOA was present and, if so, where and at what concentrations.

- *All 150 surface and subsurface rock and soil samples tested in the NDOT Phase 1 project area had NOA concentrations below 0.25 percent.*
- *Of the 194 surface rock and soil samples tested in the RTC Phase 2 project area, only one out of five had NOA detected and only 2 samples (approximately 1 percent) had concentrations above 1 percent.*
- *Of the 267 subsurface rock and soil samples tested in the RTC Phase 2 project area, more than half had NOA detected but only 12 samples (approximately 4 percent) had concentrations above 1 percent.*
- Overall, the independently conducted soil and rock tests confirmed that NOA is present in the project areas, but NOA concentrations are generally low.

Q: What's significant about 0.25 percent and 1 percent amounts of asbestos found in the tests and are those safe concentrations?
A: In general, a material that contains 0.25 percent or greater is defined as a "Restricted Material" by the California Air Resources Board (CARB), which regulates the NOA mitigation measures in California where NOA is found at many project sites. A Restricted Material may not be used in California for surfacing applications, and there are requirements for covering or wetting surfacing materials if the NOA content is greater than 0.25 percent. The Boulder City Bypass project has adopted this standard for surfacing applications..

The Occupational Safety and Health Administration (OSHA) defines Asbestos Containing Material (ACM) as material (both commercially used and found naturally) that has greater than 1 percent asbestos. This level sets mandatory requirements for certain activities. This value does not have a "safe level" significance - it was designed to differentiate between building materials where commercial asbestos was applied and those where asbestos was not applied.

The amount of NOA in natural material, like soil and rock, is not a direct indicator of safe levels of NOA in the air. Human exposures and risks are determined based on measured air concentrations, not soil concentrations. If soil disturbance is high, uncontrolled, and does not include mitigation methods with water, a relatively small

amount of asbestos (such as found at the Boulder City Bypass project site) could still produce large airborne concentrations. However, if controlled during construction using established mitigation methods, even very large concentrations of asbestos (such as found in California) produce negligible levels in the air. That is why we will be implementing strict mitigation processes to minimize the release of dust potentially containing NOA.

Q: How are areas where NOA concentrations exceed 1 percent going to be addressed?
A: In accordance with OSHA requirements, activities in geologic materials with an average content of greater than 1 percent will be classified as Class 2 Work and special provisions per OSHA standards will be implemented. Site restrictions, training, dust control, wet methods, personal and perimeter air monitoring, personal protection, decontamination, trackout prevention, and many other standard protocols will be applied regardless of NOA content.

Q: Can NOA cause me health problems?
A: According to the Agency for Toxic Substances and Disease Registry (ATSDR), "being exposed to asbestos does not mean you will develop health problems." Many things need to be considered when evaluating whether you are at risk for health problems from asbestos exposure. From the ATSDR, the most important of these are:

- How long and how frequently you were exposed
- How long it has been since your exposure started
- How much you were exposed
- If you smoke cigarettes (cigarette smoking with asbestos exposure increases your chances of getting lung cancer)
- The size and type of asbestos to which you were exposed
- Other pre-existing lung conditions

Q: Is the project safe? Will it affect Boulder City's short and long-term public health?
A: NDOT and RTC are taking extraordinary efforts for worker and public safety. They have developed NOA mitigation measures modeled after the EPA's guidance for working with NOA, OSHA's asbestos standard for construction, California's NOA regulations for construction, and best-management practices employed at other asbestos sites across the country. Measures that will be incorporated into the project include special training of all workers, personal protection and respiratory protection, personal and perimeter monitoring, dust control measures that exceed Clark County Department of Air Quality requirements, third-party oversight to assure that specified practices are followed, and several other procedures and protocols designed to control NOA. Few construction projects in the country have similarly stringent dust control and monitoring programs. These mitigation measures will minimize exposure to dust potentially containing NOA during construction.

Q: How do I know the proposed NOA mitigation measures will be effective and who developed them?
A: The mitigation measures chosen for this project were adopted from California's Asbestos Airborne Toxic Control Measures that have been in place and proven since the late 1990's. The specifications for the project were developed by expert consultants that are highly experienced with the health effects and control of NOA, and input was provided by an expert team of geologists, engineers, toxicologists and other scientists with extensive experience in their fields of expertise. The project team also benefited from direction provided by individuals representing agencies that regulate NOA or implement NOA protocols, such as EPA, Caltrans, California Geologic Survey, Clark County Department of Air Quality, OSHA, California Air Resources Board, and others.

In addition to third party inspections, the mitigation measures will be verified by an extensive perimeter and ambient air monitoring system designed to capture daily levels and monitor long term averages. State of the art analytical tools will be used, including real time dust monitoring and air sample analysis by both Phase Contrast Microscopy and Transmission Electron microscopy.

Q: How will NOA mitigation compliance be enforced and by whom?
A: Air quality will be monitored continuously around work areas by the NDOT and RTC. The Clark County Department of Air Quality will be responsible for enforcing dust mitigation.

Q: Whom can I contact if I notice dust generated from the project during construction?
A: The NDOT and RTC will provide a project hotline for local residents to speak with project representatives who will address their concerns.

Q: Who can I contact if I notice dust coming from a location that is not the Boulder City Bypass Project?
A: The Clark County Department of air quality provides dust control oversight and would be the agency to contact.

Q: During construction, how will I be able to get the latest information update on NOA air quality construction related information?
A: A website will be developed for the project to keep everyone updated on the construction progress, ongoing rock and soil testing and ambient air monitoring.

Q: Do I have to take any precautionary measures for my personal safety during construction? Will my family be safe during construction?
A: Committed to public safety, rock and soil testing and air monitoring will be ongoing during construction and in accordance with the strict standards used in California, where construction projects routinely encounter NOA. The mitigation measures and air monitoring program is designed to prevent adverse health effects to workers on site and residents and visitors to Boulder City off site.

Q: What's the purpose of ambient air monitoring and how will it be conducted? What information will be reported and how often?
A: Ambient air monitoring is already under way at 12 different locations throughout and near the project area with weekly reports being generated. Air monitoring will also be conducted throughout the life of the project and done in accordance with EPA procedures for asbestos sampling. By monitoring air quality, the effectiveness of mitigation measures can be evaluated and adjusted if necessary.

Q: What will become of the asbestos in the soil? Will NOA material be removed from the project area and disposed of offsite?
A: All rock and soil excavated for the project will be used for construction of the project and will remain on-site. Any material with NOA concentrations above 0.25 percent will be buried and covered with a layer of surfacing material having an NOA concentration of less than 0.25 percent. There is an abundance of material on-site which has NOA concentrations well below 0.25 percent.

Q: Will I be able to access adjacent recreational areas through the project area and if so, will I be safe doing this?

A: Access to public recreation areas will be maintained across the project area during construction. Mitigation measures will be in place only at locations crossing the project.

Q: Will exposed rock cuts within the project area be safe? It seems these areas represent a newly exposed source of elevated NOA. Were any of the rock-cut areas covered in the samples tested?
A: Rock-cut areas were tested and found to have varying concentrations of NOA. However, NOA is bound within the rock structure, and therefore, is unlikely to contribute to airborne emissions.

Q: After construction, how is asbestos going to be managed in the project area and with the newly exposed rock cut slopes?
A: Per CARB standards, surfacing material with NOA concentrations of less than 0.25 percent will permanently cover exposed fill areas. Loose material will be cleared from rock-cut areas, and exposed rock will be left to naturally weather.

Q: Who is going to educate the public at-large regarding naturally occurring asbestos?
A: Both NDOT and the RTC are working with experts in the field who have experience with projects that require NOA mitigation. Both agencies will provide the public with information on the issue and the project through public forums and via their websites, where citizens can stay abreast of the project activities and the ongoing test results in the project area.

Q: Why wasn't NOA discovered years ago and why are we concerned today?
A: Testing is required at the microscopic level to determine the presence of asbestos which may be present in low concentrations in the soil. UNLV geological research in 2013 was the first to document the presence of NOA in Southern Nevada, including near the project area. As a result, NDOT and RTC conducted extensive rock and soil testing to determine the presence and concentrations of NOA in the project area.

Q: Will the air be sampled while they are building the new road? Who will be doing this?
A: Yes. Air monitoring during construction will be performed by the contractors under the supervision of the NDOT and RTC.

Q: If all soils are stable and maintained in a wet condition, can the public be exposed to asbestos?
A: Mitigation measures to prevent dust, such as wetting, are the most effective in minimizing the likelihood that NOA would become airborne during construction.

Q: How will workers be protected during construction?
A: Worker protection is a high priority for NDOT and the RTC. As work starts, OSHA requires that an initial assessment of each type of work be conducted to measure the potential exposure to workers. Based on this assessment, the appropriate level of respiratory protection for each worker will be determined, and workers will be monitored throughout the project to assure that they are not exposed to OSHA mandated thresholds of NOA. Trackout of asbestos from the site is prevented by wearing protective clothing, most commonly Tyvek suits, which are removed and disposed of daily. Workers use HEPA vacuums and water to remove soil from shoes or residual dust from clothing. Most importantly, each worker receives special training that informs them of how exposure occurs and how it can be prevented, as well as site requirements for handling NOA and other topics as required by OSHA.

Naturally Occurring Asbestos: Approaches for Reducing Exposure

Purpose and Intended Audience

This fact sheet provides an overview of approaches for reducing exposures to naturally occurring asbestos (NOA). It is intended to make general information about management options available to state and local government officials, project managers, and environmental professionals. The information should serve as a starting point for identifying current NOA management practices. In general, selecting an appropriate approach to reduce NOA exposure should be determined on a location-specific basis.

NOA management approaches can reduce but may not completely eliminate potential exposures to naturally occurring asbestos.

Information contained in this fact sheet was obtained from the currently available literature, including state and local government publications. To obtain more information on NOA management approaches, including their performance and frequency of use, refer to the resources provided at the end of this fact sheet.

Naturally Occurring Asbestos

NOA occurs in rocks and soil as a result of natural geological processes. Natural weathering and human activities may disturb NOA-bearing rock or soil and release mineral fibers into the air, which pose a greater potential for human exposure by inhalation.

The U.S. Geological Survey (USGS) has an ongoing project to map the locations of historical asbestos mines, former asbestos exploration prospects, and natural asbestos occurrences. At least 35 states have reported NOA locations. To locate NOA areas in a specific part of the country, begin by consulting the USGS reports (see below) and contact a state geologist.

U.S. Geological Survey	• Eastern United States http://pubs.usgs.gov/of/2005/1189/ • Central United States http://pubs.usgs.gov/of/2006/1211/ • Rocky Mountain States http://pubs.usgs.gov/of/2007/1182/ • Southwestern United States http://pubs.usgs.gov/of/2008/1095/
California Geological Survey	Asbestos Reports, Maps, and Guidelines for Geologic Investigations • http://www.conservation.ca.gov/cgs/minerals/hazardous_minerals/asbestos/Pages/Index.aspx

In this fact sheet, NOA does not refer to commercially processed, asbestos-containing material, such as insulation and fire protection in buildings or automobile brake linings. Information about commercial asbestos-containing products is available in other publications, including the resources mentioned on EPA's asbestos Web page http://www.epa.gov/asbestos.

Approaches for Mitigating Exposures to NOA

The following general approaches to mitigate inhalation exposures to NOA are aimed at reducing NOA releases from rock or soil into the air:

- Leave NOA material in place and undisturbed
- Cover or cap NOA material
- Limit dust generating activities
- Excavate and dispose of NOA material

Approaches for reducing NOA exposure are similar to practices used for asbestos-containing materials in commercial applications.

Depending on the situation, a combination of engineering controls, work practices, and institutional (administrative) controls may be needed to implement an approach and reduce potential exposures to NOA. Selecting an approach depends on factors including:

- Accessibility of NOA (ground surface vs. below ground surface)
- Types of activities that disturb NOA (construction project vs. gardening)
- Climate and weather conditions
- Current and future land uses
- Technical and administrative feasibility of the approach

Typical engineering controls involve the use of covers and caps, vegetation, fencing, landscaping, and in some conditions, the application of water to suppress dust. Local factors, such as climate, influence the extent to which these approaches are implemented. For example, areas with dry or windy conditions may need more dust control than those with humid or less windy conditions.

Common work practices include limiting activities on NOA-containing areas, reducing driving speed on unpaved roads that may contain NOA, and cleaning vehicles driven over NOA. For example, during road construction or maintenance activities on unpaved areas where NOA is present, the Asbestos Airborne Toxics Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations of the California Air Resources Board (ARB) requires that vehicle speeds not exceed 15 miles per hour.[1] Worker health and safety measures that include respiratory protection may be warranted. For information, consult with Occupational Safety and Health Administration Asbestos Standards for the General Industry and Asbestos Standards for the Construction Industry (http://www.osha.gov/SLTC/asbestos/hazards.html).

Examples of Engineering and Work Practices that Reduce Exposure to NOA

Excavation, Grading, or Utility Work at Construction Projects	• Wet road surfaces with water using trucks, hoses, or sprinklers[1] • Wet piles of excavated material and cover them with tarps, plastic sheeting, or other items[1] • Continuously mist the work area[1] • Install wind barriers around the work area[1] • Clean or decontaminate equipment and vehicles to ensure that no equipment or workers track soil out of the work area (a gravel pad, tire shaker, or wheel wash system may be used to clear soil from vehicles)[1] • Wet the work area using a spray system attached directly to rock cutting or drilling equipment, such as a fine-mist sprayer or a variable-rate fogger nozzle (similar to those used in fire fighting)[2] • Excavate utility trenches to an adequate depth and backfill them with clean soil so that future repair work will not need excavation into potential NOA-containing materials[3] • When transporting NOA-containing materials, avoid overloading trucks; keep the material below the top of each truck compartment and cover material with a tarp[4] • Limit personnel and vehicle access to the work area[5] • Identify NOA-containing areas with signs[2] • Reduce driving speed[1] • Reduce drilling or excavating speeds[6] • Excavate during periods of calm or low winds[1]
Roads and Parking Areas (unpaved and gravel roads)	• Cover roads with non-NOA-containing rock, chemical sealants or dust suppressants, chip seals, limestone aggregate, petroleum sealants, or asphalt cement paving[1, 7, 8] • Wet road surfaces with water[1] • Install windbreaks or berms[1] • Reduce driving speed[1] • Avoid dusty areas, especially in windy conditions[1]

Around Communities (playgrounds, ball fields, pathways, and gardens)	• Cover areas of rock and soil with clean soil, rock, vegetation, or other material (see next section, General Considerations for Using Covers or Caps)[3, 9] • Pave over unpaved walkways, driveways, or roadways containing NOA[1, 10] • Landscape areas with vegetation, such as NOA-tolerant plants, and add a layer of organic mulch or NOA-free soil. Water plants often until they are established to minimize erosion[9] • Water garden areas before digging[9] • Keep windows and doors closed on windy days and during periods when nearby rock or soil may be disturbed, such as during construction[9] • Limit track-in by using entryway (door) mats, and wipe down pets before they enter buildings to reduce the amount of soil tracked indoors[4, 9] • Allow children to play in outdoor areas only if the area has a ground covering, such as wood chips, mulch, sand, pea gravel, grass, asphalt, shredded rubber, or rubber mats[4] • Relocate outdoor activities to areas that do not contain NOA (walk, run, hike, and bike only on paved trails)[4] • Avoid dusty areas, especially in windy conditions[11]

General Considerations for Using Covers or Caps

One of the most common engineering controls is to place a cover system over the NOA. Cover materials may include clean soil or rock, concrete, chemical sealants or dust suppressants, chip seals, limestone aggregate, petroleum sealants, asphalt paving, geotextiles, wood chips, mulch, sand, pea gravel, shredded rubber, rubber mats, and vegetation.

The complexity of cover systems can vary from simple (e.g., a single soil layer) to complex (e.g., multiple layers of varying materials). Several factors, including cover material properties and site characteristics, affect the type of cover system appropriate for a particular area.

The availability of materials may influence the type of cover used. Materials that are readily available and close to the NOA area may be more desirable and cost effective than materials found farther away. For example, artificial turf and other imported materials may be more expensive than locally available soils. The cover material will likely need to be assessed for NOA or other undesirable constituents. Expected lifetime, maintenance, and monitoring requirements also affect the cost of covers.

The slope of the NOA area may influence the type and thickness of the cover material used. For example, steep slopes may need vegetation or shotcrete (concrete or mortar sprayed onto a surface with a pressurized hose) to promote slope stabilization. Steep slopes typically have a higher potential for erosion and therefore may demand thicker cover material.

The thickness of the cover material should provide a safety factor sufficient to ensure that airborne releases will not occur. Thicker covers may be needed in areas where there is a significant potential for erosion. The surface of a cover should protect against erosion by wind and rain. Materials used for erosion control typically include a layer of topsoil and vegetation. In areas where adequate vegetation is not possible, gravel, admixtures, or riprap may be used for the surface layer. The thickness of the cover may also depend on the presence of other cover components, such as irrigation lines.

A geotextile, which is a geosynthetic material made of polymer fabric, may be placed below the cover material to mark the presence of NOA and serve as an erosional indicator. Geotextiles also can provide protection, reinforcement, drainage, and separation when applied to the soil surface or between layers of materials. The California Department of Toxic Substances Control (DTSC) recommends that landscaped areas and play fields at schools include a geotextile marker covered by sufficient cover material to provide an effective barrier to reduce NOA exposures.[3] Placement of geotextile markers will demand additional time and expertise.

Long-Term Management Approaches

For long-term management of areas with NOA, institutional controls (ICs) and a maintenance plan may be desirable. In areas where NOA poses potential health concerns, local and state government officials should consider providing educational material to supplement engineering approaches for reducing exposures to NOA. The Agency for Toxic Substances and Disease Registry has developed a fact sheet about asbestos and NOA for the general public entitled "Asbestos and Health: Frequently Asked Questions."[4]

Institutional Controls

For additional information about ICs, refer to the Land Use Controls Web site at http://www.lucs.org

Generally, ICs are administrative or legal mechanisms that are designed to help minimize the potential for human exposure to contamination. They also protect the integrity of the engineering measures. ICs are generally divided into four categories:

- *Government controls* include laws and permits (such as local zoning laws and permits required for excavating or digging). Work that may disturb NOA-containing soil may require government approval and may be subject to local or state construction guidelines. In California, the ATCM of the California ARB requires owners and operators to notify the local air quality management district within one business day of discovering NOA, serpentine mineral, or ultramafic rock in an area to be disturbed by construction, grading, quarrying, or surface mining operations.[1] In Virginia, the Fairfax County Health Department requires a compliance plan that includes air monitoring to ensure effective dust control during construction in areas containing NOA.[2]
- *Proprietary controls* include property use restrictions based on private property laws, such as land use easements or covenants.
- *Enforcement tools* include legally binding documents that require individuals or companies to conduct or prohibit specific actions.
- *Informational devices* include deed notices, public advisories, and other measures (such as warning signs and worker health and safety awareness training) that alert and educate people about an area.

Maintenance Plan

A maintenance plan can help ensure that engineering controls and work practices remain effective. In California, for example, DTSC and school districts enter into an agreement to develop and implement an approved long-term operation and maintenance plan under DTSC oversight. These plans generally contain information about the following topics:[3]

- Building locations, utility line locations, and the thickness of cover material across the area
- Routine inspections

- Maintenance work, including erosion and storm water control
- Procedures for repairing cover damage
- Monitoring activities, such as perimeter or personal air monitoring
- Reporting format and frequency
- Restrictions on future activities that may expose NOA
- Management of imported soil and future excavation or trenching activities

Additional Information

- Agency for Toxic Substances and Disease Registry - http://www.atsdr.cdc.gov/NOA
- California Air Resources Board - http://www.arb.ca.gov/toxics/asbestos/asbestos.htm
- El Dorado County, California - http://www.co.el-dorado.ca.us/emd/apcd/asbestos.html
- Fairfax County, Virginia - http://www.fairfaxcounty.gov/hd/asb
- Sacramento County, California - http://www.airquality.org/compliance/asbestosNaturallyOccurring.shtml
- U.S. Environmental Protection Agency - http://www.epa.gov/asbestos/pubs/clean.html

References

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8. Cal/EPA DTSC. 2005. "DTSC Recommends Resurfacing of Serpentine Gravel Roads Based on Garden Valley Study." April. http://www.dtsc.ca.gov/SiteCleanup/Projects/Garden_Valley.cfm

9. Cal/EPA ARB. 2002. "Asbestos-Containing Rock and Soil – What California Homeowners and Renters Need to Know." Compliance Assistance Program. CAP 03-035. http://www.arb.ca.gov/cap/pamphlets/asbestosbrochure.pdf

10. Cal/EPA DTSC. 2006. "Fact Sheet: Recommended Housekeeping Activities to Reduce Exposure to Naturally-Occurring Asbestos in Schools." October. http://www.dtsc.ca.gov/Schools/upload/Recommended_Housekeeping_for_NOA_102306.pdf

11. University of California Cooperative Extension. Undated. "Lake County Serpentine Landscape Demonstration Garden." Asbestos Serpentine Soils Education Program. http://www.capcoa.org/noa/%5B5%5D%20Lake%20County%20Serpentine%20Landscaping.pdf

List of Acronyms

ARB	Air Resources Board
ATCM	Airborne Toxic Control Measure
DTSC	Department of Toxic Substances Control
ICs	institutional controls
NOA	naturally occurring asbestos
USGS	U.S. Geological Survey

COMMENT FORM

Public Information Meeting
I-11 Boulder City Bypass
Tuesday, October 21, 2014

▪ ***Please Print Clearly*** ▪

Date: _____

Name: _____

Address: _____

City: _____ State: _____ ZIP Code: _____

Phone (Day): _____ Phone (Evening): _____

E-mail Address: _____

Would you like someone to call you to discuss your comment or question? ☐ YES ☐ NO

Comment/Question: _____

_____

_____

_____

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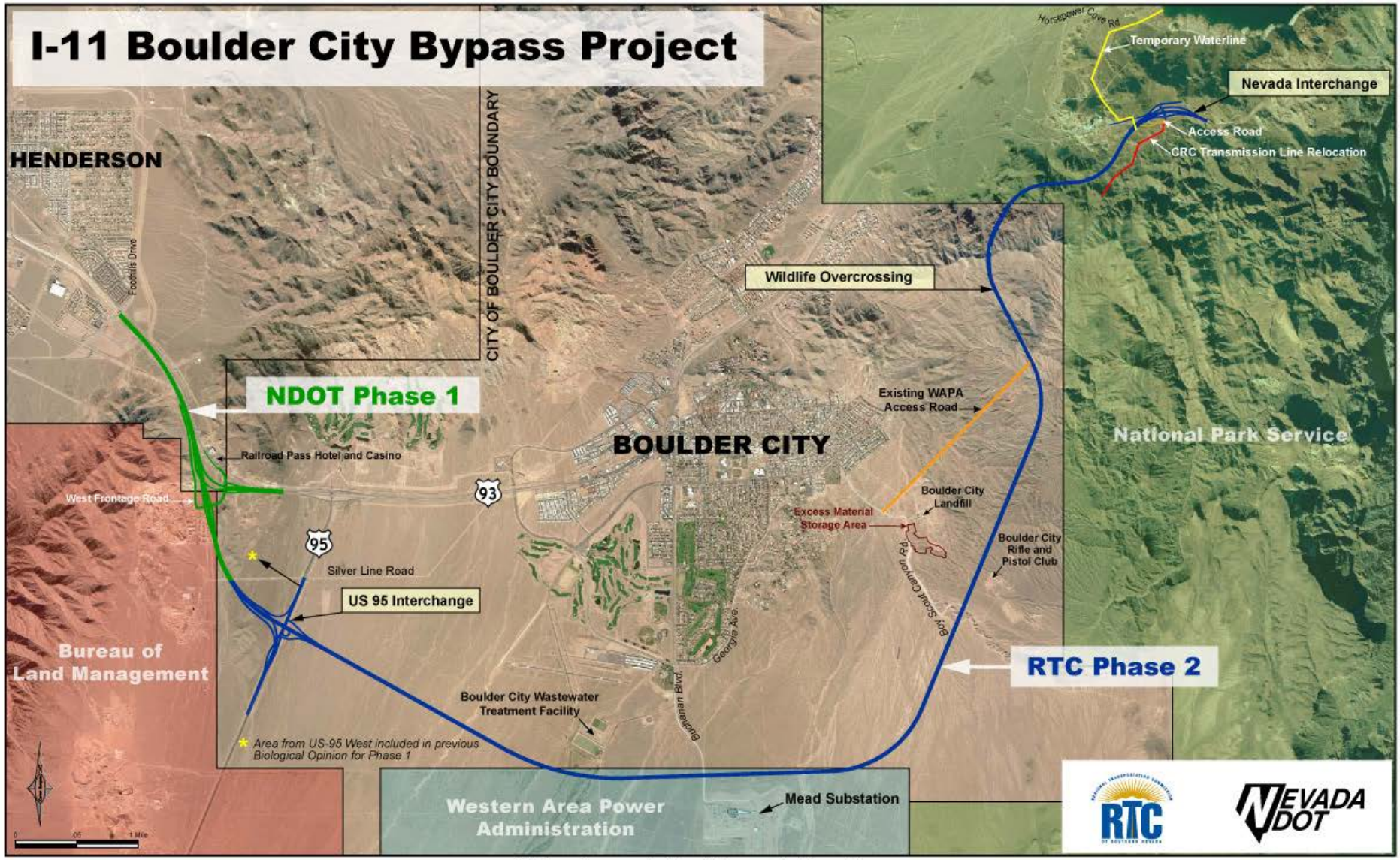
Comments will be accepted through 5 p.m., November 4, 2014. Please mail to:
Tony Lorenzi, Project Manager, NDOT, 1263 S. Stewart St., Carson City, NV 89712
Thank you for your time and interest

NDOT USE ONLY:
Date Addressed/Answered: _____
Comments: _____
Public Outreach Team Member: _____



All information presented is preliminary subject to revision.

I-11 Boulder City Bypass Schedule

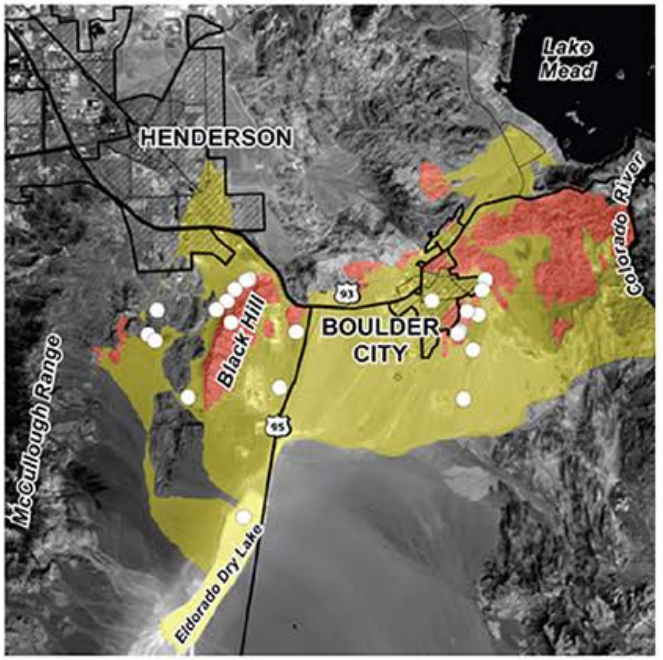
Complete Bid Process, Phase 1 and Phase 2	Fall 2014
Comment Period Closes	November 4, 2014
Complete Re-evaluation of 2005 Environmental Impact Statement	November 21, 2014
Start Construction, Phase 1 and Phase 2	Spring 2015
Complete Construction, Phase 1 and Phase 2	Summer 2018

Naturally Occurring Asbestos (NOA)

- "NOA occurs in rocks and soil as a result of natural geologic processes. Natural weathering and human activities may disturb NOA-bearing rock or soil and release mineral fibers into the air, which pose a greater potential for human exposure by inhalation." (EPA)

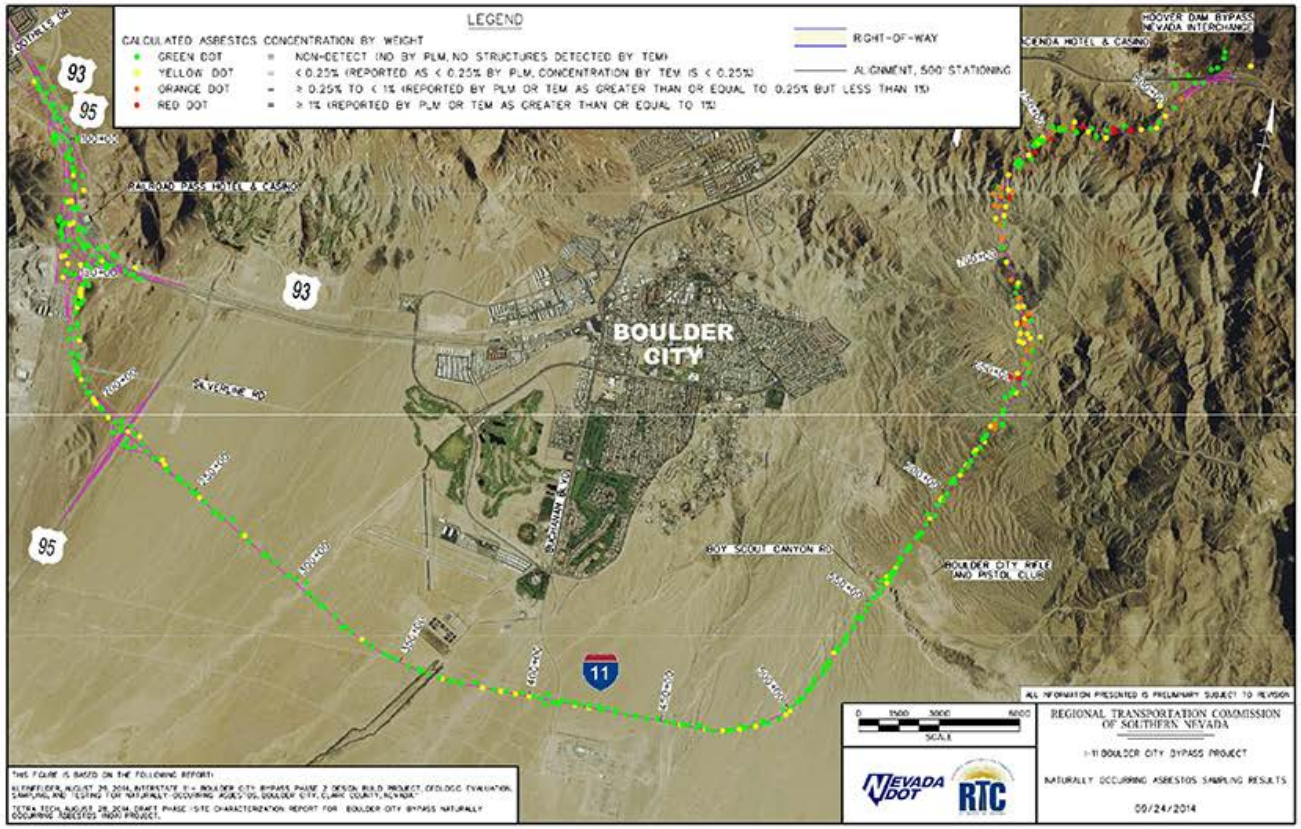
- "NOA does not refer to commercially processed, asbestos-containing material, such as insulation and fire protection in buildings or automobile brake linings." (EPA)

- Occurs in at least 35 States, 42 California Counties, and Clark County, Nevada

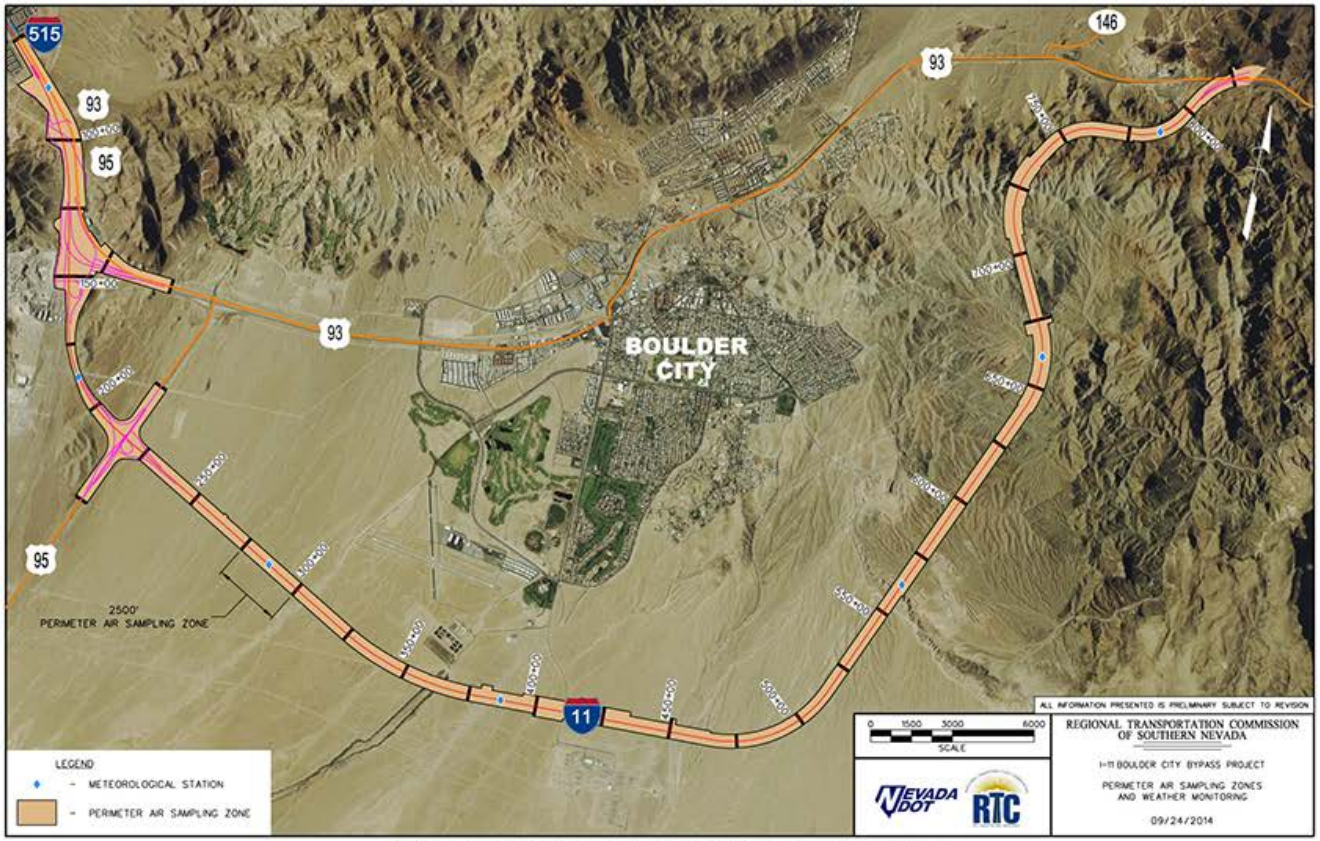


Potential naturally occurring asbestos rock outcrops (red) and potential NOA bearing soils (yellow). White circles are sample locations (taken from Buck et al. 2013: Figure 2)

Naturally Occurring Asbestos Sampling Results



Perimeter Air Sampling Zones and Weather Monitoring



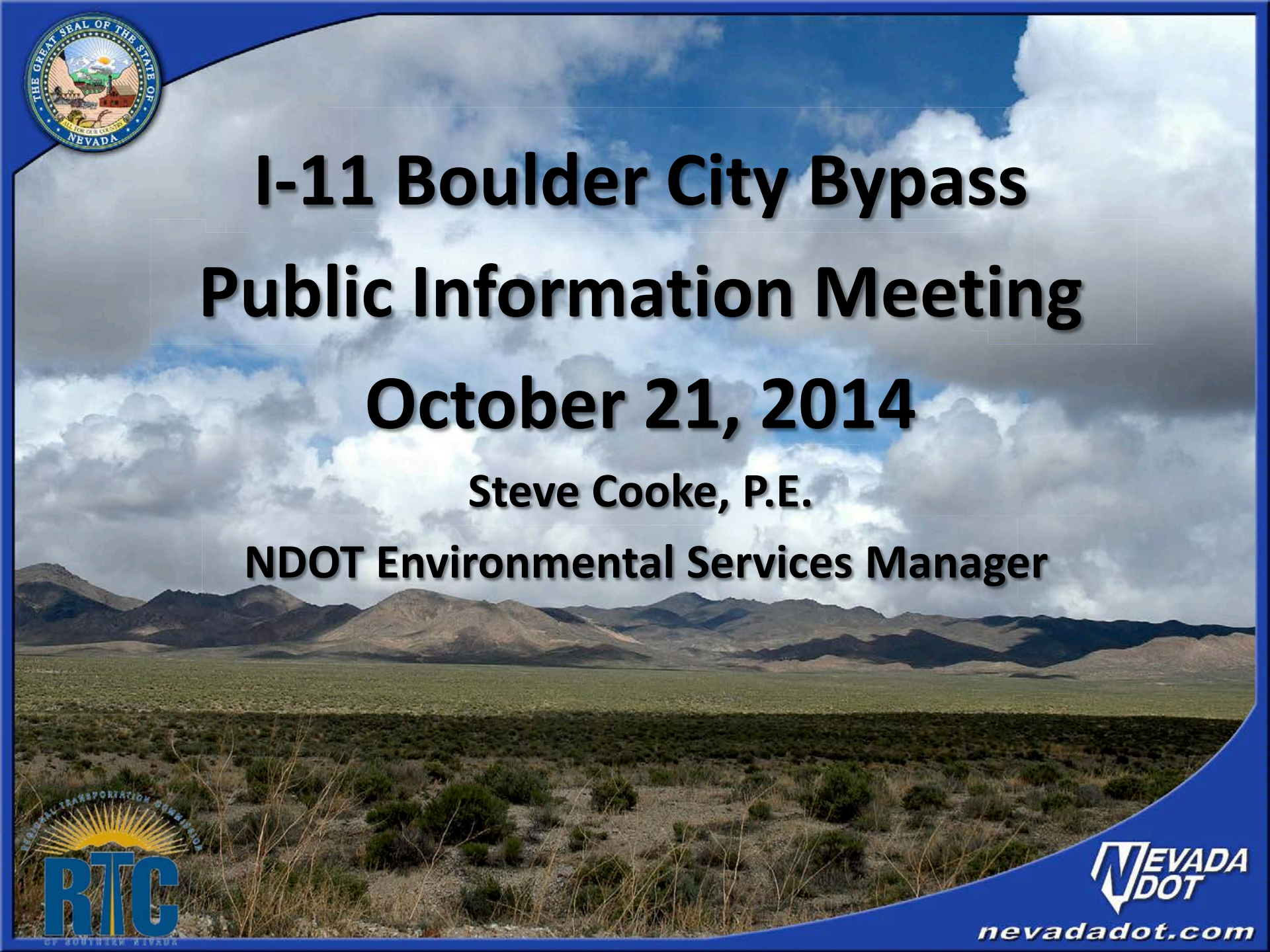
All information presented is preliminary subject to revision.

Measures recommended by EPA to mitigate exposure to dust from naturally ocurring asbestos include the following:

	To be performed by Contractor
1) Wetting work areas and unpaved road surfaces using water trucks, hoses, spray systems or sprinklers.	YES ☑
2) Clean equipment and vehicles to prevent tracking soil out of the work area.	YES ☑
3) Reduce vehicle driving speeds in the work area.	YES ☑
4) Reduce drilling and excavating speeds.	YES ☑
5) Avoid overloading trucks.	YES ☑
6) Excavate during periods of calm or low wind speeds.	YES ☑

Compliance measures during construction to minimize exposure to dust with NOA

1) Air quality monitoring during construction.
2) Following California Air Resources Board (CARB) regulations for NOA.
3) On-site dust monitoring by the Clark County Department of Air Quality.
4) Construction in accordance with recommended EPA measures to mitigate exposure to dust with NOA.
5) Construction in accordance with Clark County dust control permit.
6) Covering or capping NOA material with soil or rock meeting CARB standards for surfacing applications.



I-11 Boulder City Bypass
Public Information Meeting
October 21, 2014

Steve Cooke, P.E.

NDOT Environmental Services Manager

RTC OF SOUTHERN NEVADA

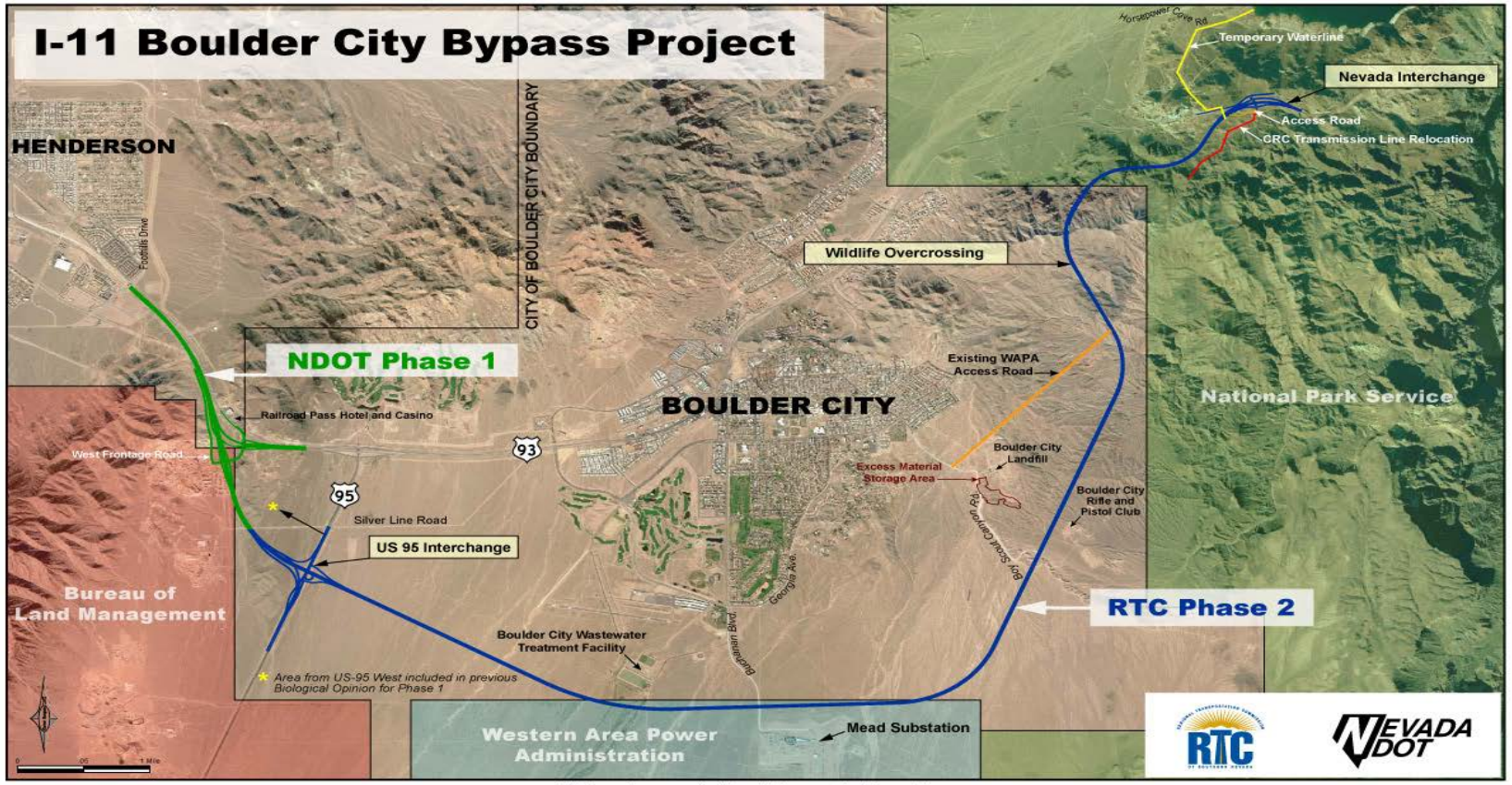
NEVADA DOT

nevadadot.com

Purpose for Tonight's Meeting

- Inform and update you about the Boulder City Bypass project
- Document the discovery of Naturally Occurring Asbestos (NOA)
- Discuss NOA study results and EIS Reevaluation Process

I-11 Boulder City Bypass



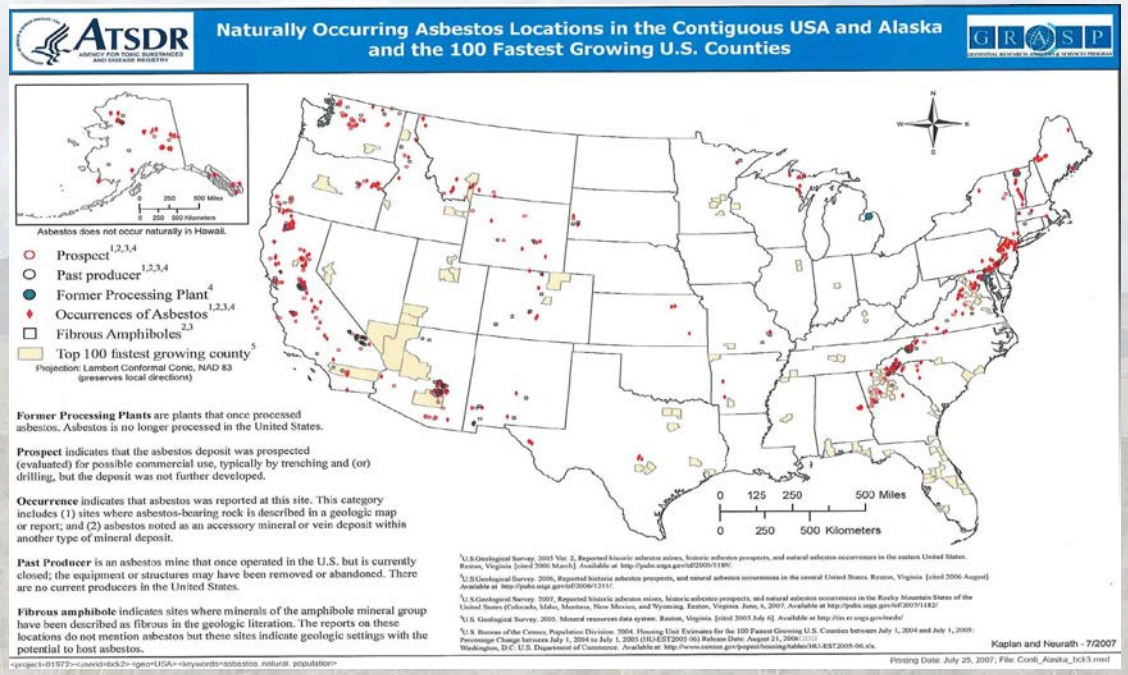
All information presented is preliminary subject to revision.

What is Naturally Occurring Asbestos (NOA)?

- NOA occurs in rocks and soil as a result of natural geological processes. Natural weathering and human activities may disturb NOA-bearing rock or soil and release mineral fibers in the air, which poses a potential risk for exposure by inhalation.
- NOA does not refer to commercially processed, asbestos-containing material, such as insulation and fireproofing in buildings or automobile brake linings.

NOA Locations Nationwide

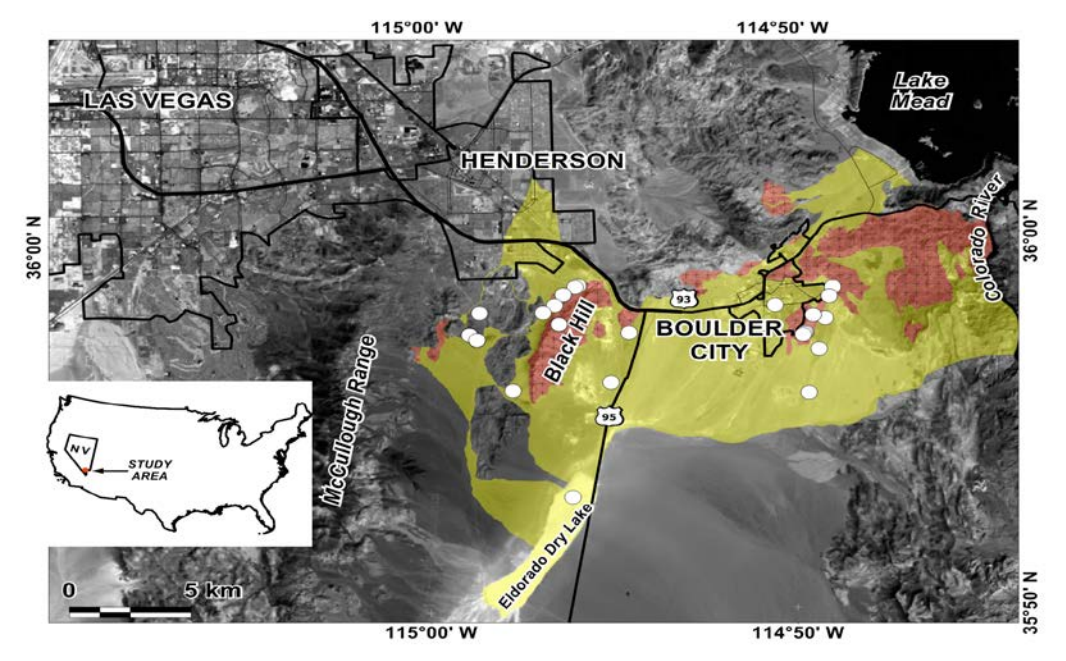
- Occurs in at least 35 States
- 44 out of 58 counties in California have documented occurrences of NOA



nevadadot.com

UNLV Study

- 2013 study identified the presence of NOA at various locations in and around Boulder City.



Potential naturally occurring asbestos rock outcrops (red) and potential NOA bearing soils (yellow). White circles are sample locations (taken from Buck et al. 2013: Figure 2).

Boulder City Bypass NOA Team

- Initial NOA Team (FHWA, RTCSN and NDOT)
- Augmented Team with assistance from the Volpe Center* and consulting environmental engineers and scientists
- Volpe Center assembled Expert Panel

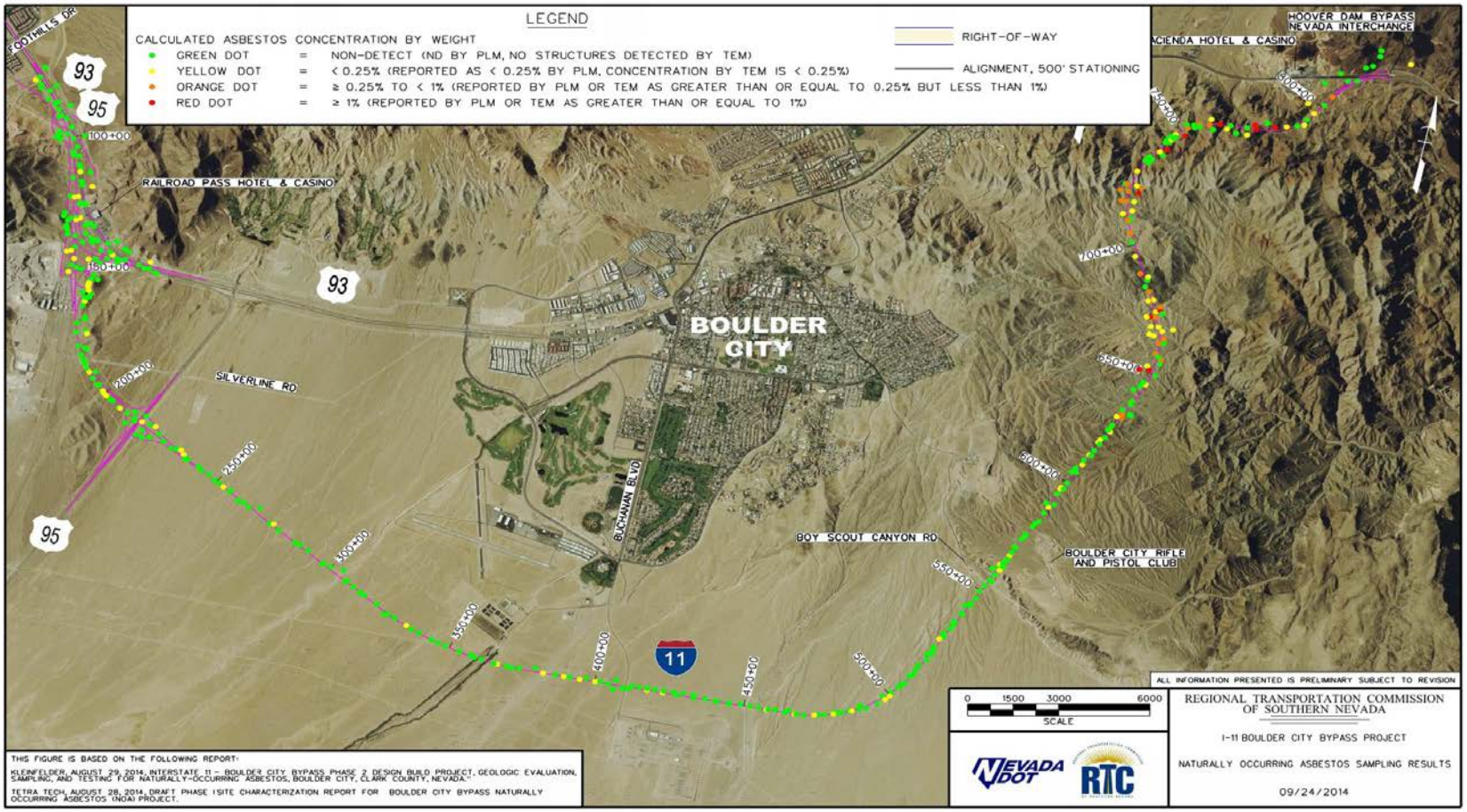
* U.S. Department of Transportation Center of Expertise

Boulder City Bypass NOA Team

Site Characterization

- Environmental engineering firms tested soil and rock samples along the alignment
  - 611 samples were collected from depths ranging from the surface to 200’ below ground in large rock cut areas
- Samples were tested to determine if NOA was present
  - If so, where it occurs and at what concentrations

Site Characterization



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Site Characterization

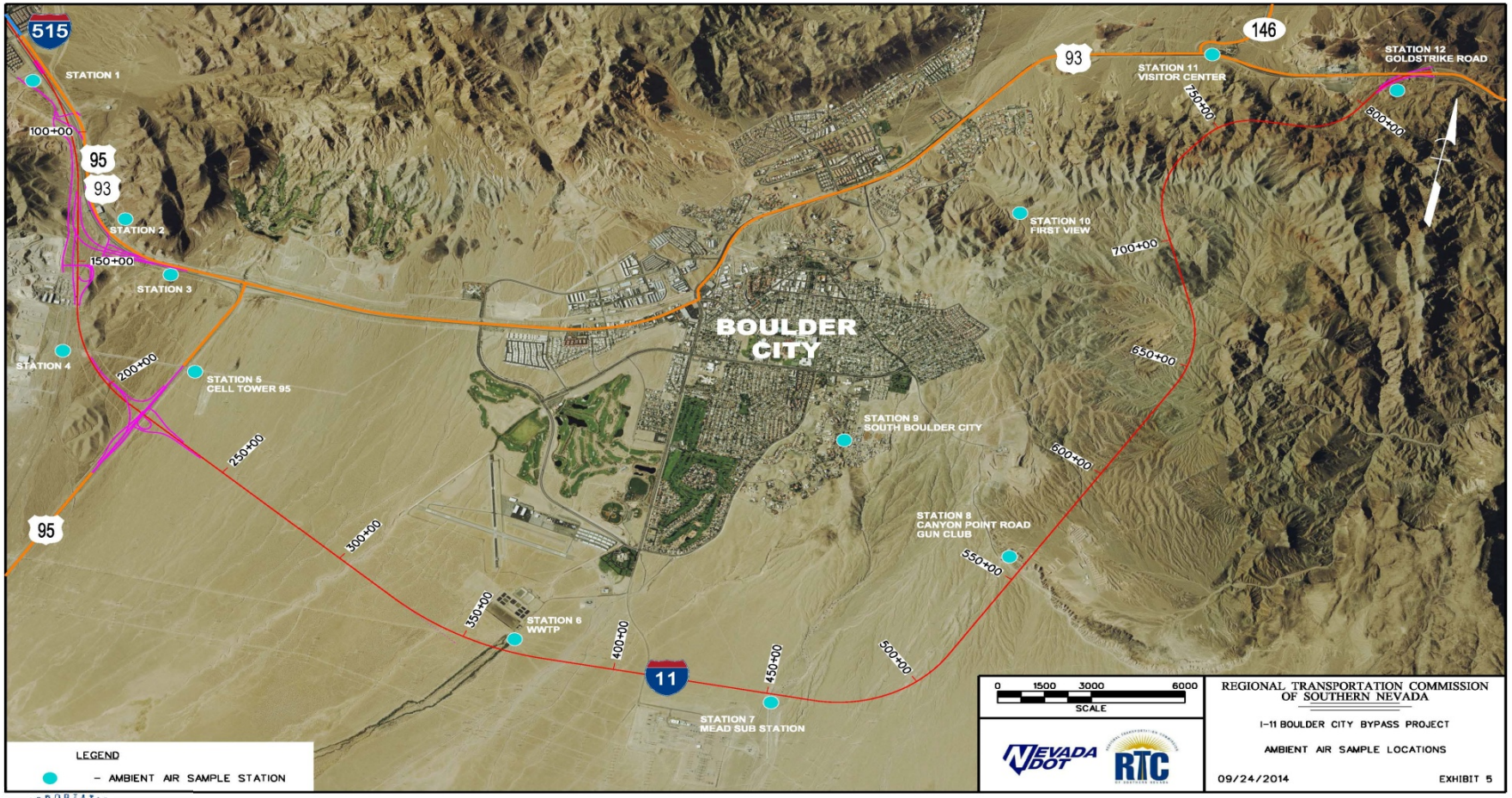
NOA sampling results

- 597 samples test below 1%
  - 406 were non detect
  - 154 had concentrations of less than 0.25%
  - 37 had concentrations between 0.25% and 1%
- 14 samples test above 1%
  - 13 between 1% and 2%
  - 1 at 6.38%
- Overall: Comparatively higher concentrations of NOA are located in foothills and mountainous areas east of Boulder City

Ambient Air Characterization

- Established 12 monitoring stations (4 locations in Phase I and 8 in Phase II) to determine possible presence and concentrations of NOA in the air
- Monitoring station locations included residential and public-use areas outside highway project boundaries

Ambient Air Characterization



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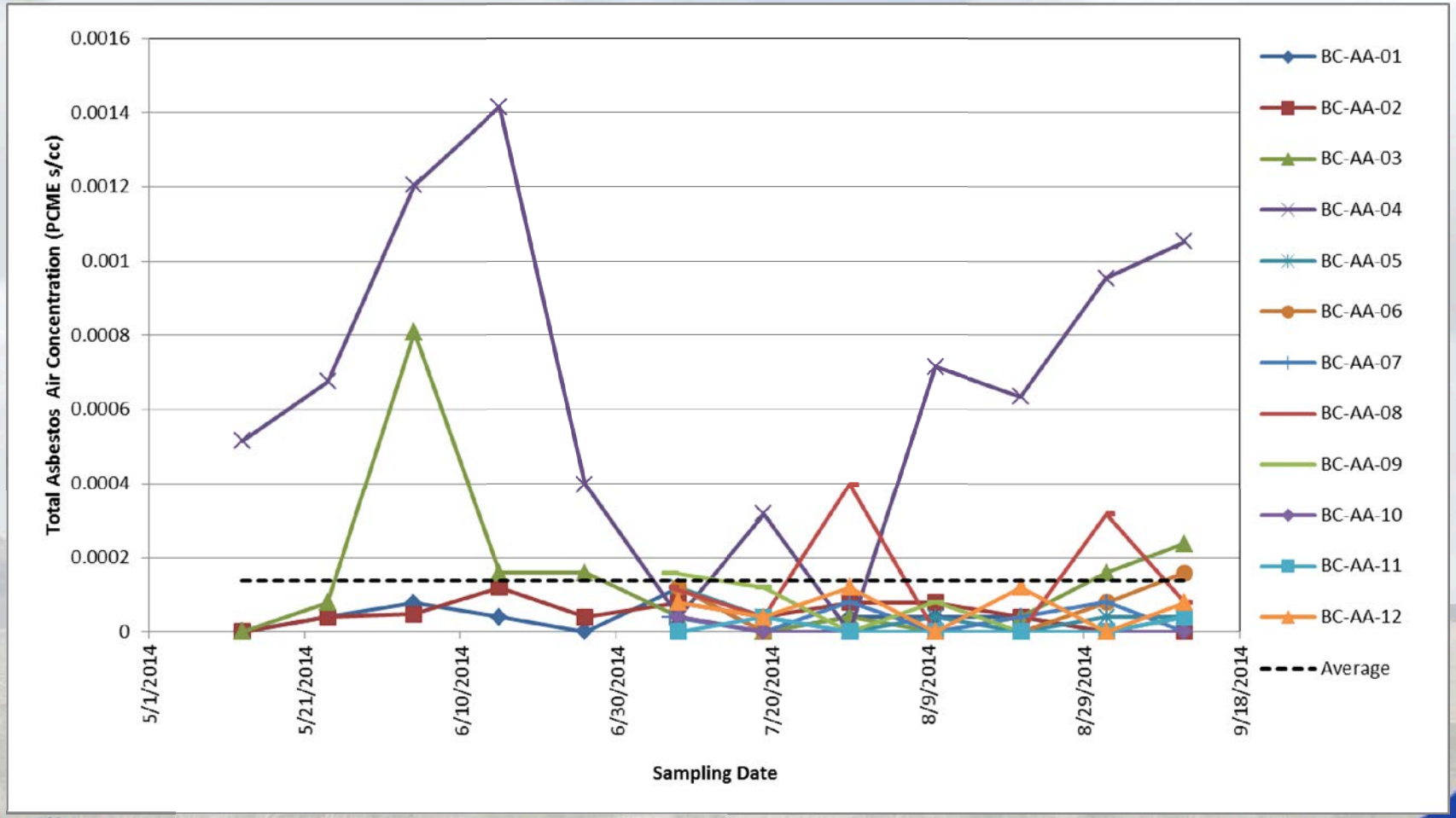
Ambient Air Characterization Results



NOA Regulations

- **EPA**: Regulates asbestos under three laws but none pertain to NOA
- **OSHA**: Regulates asbestos for worker safety
- **State of Nevada**: No statutes or regulations specifically for NOA
- **Southern Nevada Health District** : Regulates transport of asbestos greater than 1 percent by weight
- **Clark County Department of Air Quality**: Regulates only dust

NOA Mitigation Measures

- Agencies referenced
  - Caltrans (California DOT)
  - California Air Resource Board (CARB)
- Mitigation measure outcome
  - Modeled mitigation measures after California regulations (CARB) and best practices

NOA Mitigation Measures

- Thoroughly wet work areas and unpaved road surfaces using water trucks, hoses, spray systems or sprinklers
- Reduce vehicle driving speeds in the work area to limit dust generation
- Reduce drilling and excavating speeds
- Excavate and blast during periods of calm or low wind speeds

NOA Mitigation Measures

- Avoid overloading trucks to prevent “spill out”
- Clean equipment and vehicles to prevent tracking soil out of the project work area
- Limit NOA concentration to less than 0.25 percent for surfacing material (topsoil, landscaping, etc.)

Mitigation Measure Compliance

- Clark County Air Quality Permit
- NDOT/RTC and Contractor mitigation compliance teams
- Implementation of NOA Management Plan
  - Describes the managerial approach, strategy, characterization, and quality procedures to achieve all of the requirements for NOA mitigation
- Project ambient and perimeter air sampling

NEPA Re-evaluation Process

- FHWA regulations allow for a re-evaluation process for completed EIS documents and outline when a Supplemental Environmental Impact Statement (SEIS) is required
  - 23 CFR 771.129(c) and 130(c)
- Develop appropriate studies to assess the impacts of the changes
- Conclusion: By implementing the proposed NOA mitigation measures, the Boulder City Bypass Project will not result in a significant impact to the environment, therefore not warranting the preparation of a SEIS.

Open Comment Period

- Please state your full name and address prior to your question or statement
- Three-minute verbal comment per individual
- A court reporter is available to take comments after the presentation

Discussion Panel

- Volpe Center (Expert Panel Oversight)
  - Mark Raney, Senior Environmental Engineer
  - Chris Zevitas, Senior Environmental Engineer
- Tetra Tech Inc. (Air Monitoring and Phase I Field Sampling)
  - Ed Surbrugg, PhD, Senior Soil Scientist
  - Rob Tisdale, PhD, Senior Chemist
- Kleinfelder (Phase II Field Sampling)
  - Bradley Erskine, PhD, Senior Geologist
- CDM-Smith Inc. (Data Compilation/Construction Specifications)
  - Lynn Woodbury, Asbestos Risk Assessment
- Clark County Department of Air Quality (AQ Compliance)
  - Chuck Richter, Dust/Asbestos Air Quality Supervisor

APPENDIX G

Responses to Public Comments

Responses to Comments Received at the October 24, 2014 Public Meeting Not Addressed in the Question and Answer Session and Comments Submitted to NDOT as Part of the 30 Day Comment Period (October 6 - November 5, 2014)

1) Are studies available that address the occurrence of lung disease in communities that live in close proximity to NOA?

There are studies addressing naturally occurring asbestos (NOA) and residential proximity from many parts of the world. Studies have been done in Europe and the Middle East showing elevated cancers based on NOA exposures. However, these studies focus mostly on populations where dwellings where built into the NOA rock formations or NOA building materials were otherwise directly incorporated into dwellings.

In the U.S., Pan et al. (2005) published an article examining the proximity to NOA and mesothelioma risk in California. Pan et al. concluded that their data "support[ed] the hypothesis that residential proximity to NOA is significantly associated with increased risk of mesothelioma in California". However, Brodkin et al. (2006) noted important limitation in the study design employed by Pan et al. that preclude the determination of a causal association between NOA and mesothelioma and emphasized that, until follow-up studies are conducted, conclusions regarding an association between residential proximity to ultramafic rocks and mesothelioma risk at the individual level, based on ecological data, must be interpreted with caution. Another limitation of the Pan study, also noted by Brodkin et al. (2006) is the presence of NOA deposits is used as a proxy for exposure because there are no available exposure histories. Given that the primary route of exposure for asbestos, including NOA, is via airborne exposure, there is a potential for exposure misclassification.

The U.S. Environmental Protection Agency's (EPA) results from El Dorado Hills in northern California do show that engaging in a variety of sports and play activities in the areas with NOA can expose individuals participating in those activities to significantly elevated levels of amphibole asbestos. Similar findings were reported by the Agency for Toxic Substances and Disease Registry (ATSDR 2007) in a study of exposures to those riding ATVs in Ambler, Alaska.

How these findings should be interpreted and used by public health officials and regulators is the broader question of NOA proximity studies. The link between asbestos exposure and lung disease is well-established in occupational settings, but the association between proximity to NOA and lung disease has not been as well characterized. We recognize the association between asbestos and lung disease and are seeking to provide a regionally and nationally important transportation infrastructure in a manner that also recognizes public health concerns. To this end, the Federal Highway Administration (FHWA) and the Nevada Department of Transportation (NDOT) will implement measures to minimize NOA exposures due to construction activities in residential areas during construction.

References:

ATSDR. 2007. Exposure Investigation Final Report Ambler Gravel Pit, Ambler, Alaska. Atlanta, GA: Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services, Public Health Service. June 28, 2007. http://www.atsdr.cdc.gov/HAC/pha/AmblerGravelPitEIJune2007/AmblerGravelPitHCEI06282007.pdf

Pan X, Day HW, Wang W, Beckett LA, Schenker MB. Residential proximity to naturally occurring asbestos and mesothelioma risk in California. Am J Respir Crit Care Med 2005;172:1019–1025.

Carl Andrew Brodkin, John R. Balmes, Carrie A. Redlich, and Mark R. Cullen "Residential Proximity to Naturally Occurring Asbestos: Health Risk or Ecologic Fallacy?" American Journal of Respiratory and Critical Care Medicine, Vol. 173, No. 5 (2006), pp. 573.

2) Where can we view the air monitoring data? Will it be available hourly, daily, or weekly?

Both NDOT and the Regional Transportation Commission of Southern Nevada (RTC) plan on having websites available to the public to provide access to NOA sampling and testing data. Air data to be collected and analyzed during construction of the Boulder City Bypass (BCB) project include ambient air samples from locations offsite of the BCB project, perimeter air sampling located along the perimeter of the BCB project right-of-way (ROW), and personal air samples gathered form BCB project workers conducting rock and soil disturbing activities within the project ROW.

Because all air and soil samples must be analyzed in a laboratory it is estimated that there will be a 3-5 day turnaround of the results. This will depend on the number of samples collected and the available resources of the laboratories. The presence of an on-site laboratory can substantially reduce the sample analysis turnaround time but it cannot eliminate it. Thus, it is impossible to provide “real time” NOA data. NDOT and RTC are currently only planning to post the offsite ambient air data. Presently, it is anticipated that the sampling data results will be compiled and updated on a weekly basis.

The contractor will deploy real-time aerosol dust particle monitors (RAMs) along the project ROW. The RAMs will be used where the highest dust generating activities are anticipated to occur. There is no established threshold for evaluating RAM data, so the contractor will establish an appropriate site-specific airborne dust threshold. RAMs are not able to distinguish asbestos fibers, and dust particulate levels do not necessarily correlate to airborne NOA levels. The RAM data will serve only to alert the contractor, NDOT, and the RTC that potentially NOA-containing dust may be migrating offsite. It may be possible to make real time RAM data available over the internet.

3) How are you going to contain excess material in its original area?

Material will be removed and placed throughout the project area as needed to construct the elevated roadway, interchange ramps and bridge approaches, and as landscaping material. Any material having a NOA concentration of 0.25% or higher when deposited in its final location will be capped with a minimum of 3” of material having an asbestos concentration of less than 0.25%. Rock or soil that is not tested for NOA content by the contractor or which has been tested by the contractor and contains 0.25% or higher NOA that is being temporarily stored until its final placement will be required to either be covered, have a palliative applied, or be wetted down in order to minimize the potential dispersal of NOA. Newly exposed bedrock will be washed with water to remove any loose asbestos particles and stained for aesthetic purposes. After construction has ended, there will be no further treatment of exposed bedrock surfaces to address NOA and they will be left to weather naturally. NOA is a pre-existing condition in this area not caused by the BCB project and is

already in the air. BCB construction mitigation measures have been designed to minimize increases above ambient levels.

4) Will you be building soundwalls on both sides of US 95 near the townhomes?

The area pertaining to this question is assumed to be in the vicinity of the E. Paradise Hills/Foothills Drive overpass (H-2032, I-515 CL 57.68) along existing I-515/US95. The area consists of commercial and residential development, and undeveloped property. The existing residential development is setback from I-515/US 95 and is partially shielded by the commercial development. The existing residential development also contains privacy walls around the properties.

A traffic noise analysis was conducted in the area of existing residential development (Wagonwheel Drive interchange [I-1471, IR515 CL 55.60] and Dawson Avenue). Given the distance of the properties from the roadway, the existing commercial structures, and existing privacy walls, a traffic noise impact was not realized as per regulations. It appears, per City of Henderson ordinance, the existing privacy walls act to provide adequate traffic noise mitigation. Therefore further consideration of an additional traffic noise abatement measure is not allowed or warranted.

5) Reconsider the Lake Mead overlook area. The lake is hardly visible. It will cause undue environmental damage. Scenic overlook foolish. The option of reducing the size of the largest road cut in the project by eliminating the planned scenic overlook, has been disregarded.

The scenic overlook remains a part of the BCB project. FHWA/NDOT/RTC recognize the potential short term benefit of minimizing disturbances to potentially high concentrations of NOA rock in the Eldorado Mountains. However, the overlook was included as the result of multiagency coordination to showcase the scenic vista presented at this location, regardless of lake level, and to address potential safety issues associated with vehicles slowing or stopping on a high speed freeway to take in the view. Eliminating the overlook would reduce the amount of potential NOA material requiring disturbance by several hundred thousand cubic yards, but mitigation measures will be implemented to minimize dispersal of NOA into the air toward Boulder City. Any short term benefit, such as reducing quantities of material disturbed must be weighed against potential long term adverse impacts to the environment, surrounding community, and travelling public.

6) The simplest and most effective means of reducing the creation of fugitive dust, is reducing the amount of soil that must be moved or disturbed, this mitigation measure is not listed nor was it seriously discussed or addressed at the public meeting.

As a matter of practice NDOT actively seeks to minimize the footprint of its projects weighed against the intended function of the facility, topographic constraints, and other social and economic and environmental factors specific to each project. Though not an explicit mitigation measure, since dust mitigation and NOA mitigation go hand in hand for the BCB project, it is anticipated the contractor will minimize disturbance to intact natural surfaces to the greatest extent possible. Minimizing ground disturbance is a NDOT Best Management Practice used to minimize impacts to water quality, air quality, and vegetation. NOA is a pre-existing condition in this area not caused by the BCB project and is already in the air. BCB

construction mitigation measures have been designed to minimize increases above ambient levels.

7) An interchange should be built at Buchannan Boulevard now because it will be needed in the future and will be cheaper to build now.

An interchange was not included as part of the scope of this project because connecting the bypass to Boulder City via an interchange at Buchanan Dr. would introduce new truck traffic and increase vehicle traffic into the heart of the Boulder City's residential area which is inconsistent with the purpose and need of the project.

8) What are the construction hours/days?

Currently, construction hours will be Monday through Friday 5 am to 3 pm. These hours may be adjusted by the contractor to ensure timely completion of the project and/or to take advantage of working conditions when wind speeds/directions are favorable. All work hours will be in conformance with applicable City of Boulder City ordinances and any deviation from those ordinances will require approval by the City of Boulder City.

9) Can the NOA end up settling in the lake? What is the effect on our drinking water?

It is possible that airborne NOA structures, derived from natural disturbances or construction activities, may settle in the lake and may have been settling in the lake since its creation. However, the primary route of asbestos exposure is via inhalation, not ingestion. The World Health Organization (WHO) concluded that there is "no consistent, convincing evidence that ingested asbestos is hazardous to health" (WHO 2002). Even so, EPA has established a maximum contaminant level (MCL) for asbestos in drinking water of 7 million fibers per liter (based on fibers longer than 10 microns). If the levels of asbestos exceed the MCL, the local public water supplier must notify the public.

The Las Vegas Valley Water District annual Water Quality Reports contain results for detection of specific contaminants as required by state and federal standards. Asbestos is one of the contaminants tested for and in the 2014 test registered at less than 200,000 fibers (longer than 10 microns) per liter. The Water Quality Summary can be accessed at: http://www.lvvwd.com/assets/pdf/wq_summary_lvvwd.pdf

NOA is a pre-existing condition in this area not caused by the BCB project and is already in the air and water. BCB construction mitigation measures have been designed to minimize increases above ambient levels.

Reference:

World Health Organization. Asbestos in Drinking-water: Background Document for Development of WHO Guidelines for Drinking-water Quality, 2002. http://www.who.int/water_sanitation_health/dwq/asbestos.pdf

10) Springtime is the windiest time of the year. Henderson is the "Windy City" of Nevada.

Any restrictions concerning construction activities and wind speed will be adhered to regardless of the season in order to minimize the dispersal of NOA from the BCB project area. Contractors will deploy portable meteorological stations (MET) that provide real-time

information on local weather conditions, including wind speed and direction. Measures to minimize NOA dispersal may be intensified if continually windy conditions start to substantially delay construction, but the primary goal will still be to minimize NOA dispersal. NOA is a pre-existing condition in this area not caused by the BCB project and is already in the air. BCB construction mitigation measures have been designed to minimize increases above ambient levels.

11) Where do you get your unlimited water supply?

Approximately 1 million gallons per day of non-potable effluent will be available from the Boulder City Wastewater Treatment Plant, 250,000 gallons per day of potable water from Boulder City fire hydrants, and 300,000 gallons per day will be available from the City of Henderson water system. Additionally, a total of 120 million gallons is available from the National Park Service's Lake Mead allocation that may be taken directly from Lake Mead for use exclusively within the Lake Mead National Recreation Area. These quantities are sufficient to meet the needs of the project's dust control requirements and NOA mitigation measures.

12) Complaints about dust control go to "empty ears".

The Department of Air Quality (DAQ) does receive complaints from residences of Boulder City regarding blowing dust from the dry lake bed, dust from individuals riding ATVs and dirt bikes on the desert, and dust from other off-road vehicles. DAQ has the authority to address blowing dust from vacant land parcels only within the Las Vegas Valley (Airshed 212). These regulations are not applicable to parcels located in the Eldorado Valley. County-wide, DAQ only has authority to enforce dust regulations on construction projects.

DAQ investigates all dust complaints and the complainant is advised when DAQ has the authority to prevent or stop the generation of dust associated with these types of activities. For complaints in Boulder City when DAQ has no jurisdiction, we recommend that you contact Boulder City officials since they have the ability to apply dust regulations to potential dust generating activities. The Clark County Commissioners could direct DAQ to impose fugitive dust regulation to the Eldorado Valley area but at present they have not. Any amendment to existing air quality regulation requested by the Commission would take 6-9 months to enact.

13) Where "on site" are you dumping excess excavated material?

No material will be "dumped". At present, all excavated material will be utilized within the project area and incorporated into the project as part of the elevated roadway, interchange ramps and bridge approaches, and as landscaping material. Rock and soil containing NOA can be placed anywhere within the project area. However, any material containing a concentration of 0.25% or more asbestos when placed in its final location must be capped with a minimum 3" of material containing less than 0.25% NOA. Rock or soil being temporarily stored until its final placement will be required to either be covered, have a palliative applied, or be wetted down in order to minimize the dispersal of NOA. A permanent storage area for material containing less than 0.25% NOA has been identified south of the current Boulder City landfill and directly adjacent to Boy Scout Canyon Rd. (Exhibit 1). It is located on land owned by the City of Boulder City and is considered part of the BCB "project area".

14) Any truck/trailer hauling material in NV or CA need to tarp their loads. Why are vehicles exempt?

Nevada Revised Statutes (NRS) 484D.850 states: 1) No vehicle shall be driven or moved on any highway unless such vehicle is so constructed or loaded as to prevent any of its load from dropping, sifting, leaking or otherwise escaping therefrom, except that sand may be dropped for the purpose of securing traction, or water or other substance may be sprinkled on a roadway in cleaning or maintaining such roadway; and 2) No person shall operate on any highway any vehicle with any load unless the load and any covering thereon is securely fastened so as to prevent the covering or load from becoming loose, detached or in any manner a hazard to other users of the highway.

The load covering provisions do not apply to movement of trucks/vehicles off public roads. Trucks transporting material within the project area will be subject to provisions to minimize the potential dispersal of NOA. These measures may include driving at slow speed, adequately wetting the load being transported, or covering the load or a combination of these. The exact measures required will ultimately be determined by the contractor based on environmental conditions, the load being transported, and the means of transportation employed. The project area includes those portions of public rights-of-way crossed by the project right-of of way, including US 95, Buchanan Boulevard, and Boy Scout Canyon Road.

15) Where is the temporary waterline location that will run from Lake Mead go?

An Environmental Assessment prepared by the National Park Service (NPS) and Finding of No Significant Impact was issued by NPS in October 2014 in preparation of issuing a special use permit for the temporary waterline.

The approximately 2-mile route for the waterline would be within a 30-foot right-of-way (Re-evaluation, Exhibit 1). The proposed alignment would be above ground and use existing drainages and culverts, including those that run under the Historic Railroad Trail and U.S. Highway 93. It would run from Horsepower Cove of Lake Mead to the bypass project's right-of-way south of U.S. Highway 93, east of the Hacienda Hotel and Casino, and west of the U.S. Highway 93/Hoover Dam interchange at SR 172. In Lake Mead, the waterline would be sited east of the Las Vegas Boat Harbor and Lake Mead Marina and it would be sited to minimize or avoid areas frequented by visitors. The NPS will work with RTC's contractor to determine the exact alignment for the waterline.

16) How far can particles of asbestos travel in the air, especially in high winds?

Once asbestos fibers enter the environment, from either a natural or artificial source, they tend to settle out of the air (ATSDR 2001). The rate at which asbestos particles settle out of the air depends on their size and wind speeds. In general, asbestos fibers can be transported long distances (several miles) in air, particularly under windy conditions.

Reference:

Agency for Toxic Substances and Disease Registry (ATSDR). 2001. Toxicological Profile for Asbestos (TP-61). US Dept. of Health & Human Services.

17) Once NOA containing material is "disposed of" near the site what measures will be taken years after the project to ensure that it is compacted, wet, down, etc. so that it doesn't blow in the air?

No material will be "disposed of". At present, all excavated material will be utilized within the project area and incorporated into the project as part of the elevated roadway, interchange ramps and bridge approaches, and as landscaping material. Rock and soil containing NOA can be placed anywhere within the project area. However, any material containing a concentration of 0.25% or more asbestos when placed in its final location must be capped with a minimum 3" of material containing less than 0.25% NOA. If needed, a permanent storage area for material containing less than 0.25% NOA has been identified south of the current Boulder City landfill and directly adjacent to Boy Scout Canyon Rd. (Re-evaluation, Exhibit 1). It is located on land owned by the City of Boulder City and is considered part of the BCB "project area". Upon completion of the project, any material remaining at that location will become property of Boulder City to be used at their discretion.

Only materials containing less than 0.25% asbestos can be left exposed on the surface once the project is complete. The project will incorporate erosion control measures and revegetation of disturbed areas to stabilize ground surfaces. Perpetual watering or application of palliatives on the finished surfaces is not required once construction ends. Any future maintenance or other activities that may result in intrusive activities into areas containing 0.25% or greater concentration of NOA will require mitigation measures to minimize the dispersal of NOA associated only with that activity.

18) The 10/2014 report does not say what the increased risks of cancer from the BCB project are. Likewise neither I nor NDOT can accurately predict what those risks are. Any unnecessary increased risks of asbestiosis are unacceptable. STOP THE BOULDER BYPASS PROJECT!!

The BCB perimeter air risk-based monitoring threshold was derived such that, if this threshold is met, the resulting cancer risk to adjacent communities from construction-related activities and existing ambient NOA levels will be below 1 in 100,000. This target risk was selected because it is within the acceptable cancer risk range established by EPA in managing contaminated sites. This target cancer risk level has also been employed on other NOA construction projects.

The BCB project is a very important regional and national transportation infrastructure project and all reasonable measures to minimize exposure to NOA caused by the project will be implemented by the project contractors. BCB air monitoring includes ambient air samples from locations offsite of the BCB project, perimeter air sampling located along the perimeter of the BCB project right-of-way (ROW), and personal air samples gathered form BCB project workers conducting rock and soil disturbing activities within the project ROW. The project also includes, but is not limited to, the application of water during all phases of construction activities, performing work only when rock/soils have been adequately wetted, modifying work practices (e.g., restricted vehicle and excavation speed), modifying work hours (e.g. conducting work at night when winds are low), and decontaminating site equipment prior to leaving the ROW.

19) I was informed that Professors Buck and Metcalf were removed from the NDOT NOA study and I was wondering why this was the case.

The research provided by Professors Buck and Metcalfe in 2013 was the seminal study that first identified NOA within the BCB area. However, Professors Buck and Metcalf are geologists, and FHWA/NDOT/RTC sought to include other professionals and asbestos sampling experts having backgrounds oriented toward asbestos construction mitigation measures, asbestos worker protection requirements, and airborne asbestos monitoring techniques necessary for this project. FHWA also assembled an expert panel consisting of Volpe National Transportation Systems Center (Volpe), U.S. Environmental Protection Agency (EPA), National Institute of Environmental Health Sciences (NIEHS), California Department of Transportation, California Geological Survey, Clark County Department of Air Quality, CDM Smith, Kleinfelder, Tetra Tech, EMSL Analytical Laboratory, Inc., and Asbestos TEM Laboratories, Inc. Data gathered as part of the BCB project NOA characterization effort is available to anyone who may wish to review or include these findings as part of other NOA characterization or research studies.

20) I heard that UNLV was served with a cease and desist order with regards to data on mesothelioma from the Nevada Cancer Registry that they were planning to discuss at a professional meeting.

In October 2012, the State of Nevada Department of Health and Human Services sent a copy of a cease-and-desist order to UNLV researchers. The order was directed to their collaborator, a researcher at the University of Hawaii, Dr. F. Baumann. Dr. F. Baumann had previously signed documents that included a provision that said the State of Nevada Department of Health and Human Services needed to give permission prior to publication of data from the Nevada Cancer Registry. It is Dr. Buck and her colleagues' understanding that Dr. Baumann, did not understand that an abstract to a scientific meeting constituted a "publication" and so did not obtain this permission. Prior to the cease-and-desist order, Dr. Buck and her colleagues were unaware of this publication provision. They were collaborating with the University of Hawaii researchers using those data, and their abstracts for which they we were all co-authors were removed per the cease-and-desist order. The abstracts were for presentations that would have occurred at the Geological Society of America's Meeting in the fall 2012. It must be noted that all of this occurred one year prior to NDOT being made aware of the presence of NOA in the Boulder City vicinity.

Because of this cease-and-desist order, Dr. Buck and her colleagues were unable to continue their multi-disciplinary research into asbestos and mesothelioma in southern Nevada. They then focused their research on the geological occurrence of NOA in the region, the findings of which were published in the *Soil Science Society of America Journal* in the fall 2013. It was with this publishing in fall 2013 NDOT became aware of the presence of NOA in the Boulder City vicinity and began to take steps to address this environmental condition as part of the BCB project.

21) Why is a Supplemental Environmental Impact Statement (SEIS) not being prepared?

FHWA regulations (23 CFR 771.129) allow for a re-evaluation process of their National Environmental Policy Act (NEPA) documents, which addresses changes in the project and/or environmental conditions. The re-evaluation is used to determine if the original approved environmental document remains valid. If it is determined the original document

remains valid, then a supplemental document is not required. If it is determined the original document is not valid then a supplemental document must be prepared.

FHWA regulations [23 CFR 771.130(c)] also state “where the Administration is uncertain of the significance of the new impacts, the applicant will develop appropriate environmental studies…to assess the impacts of the changes, new information, or new circumstances. If, based upon the studies, the Administration determines that a supplemental EIS is not necessary, the Administration shall so indicate in the project file”.

FHWA/NDOT developed “appropriate environmental studies” to characterize the presence of NOA in the project area and developed mitigation measures in consultation with federal and state regulatory agencies and asbestos experts leading us to conclude the changes in the project and/or environmental conditions and any potential adverse impacts associated with those changes can be mitigated enough to where there will not be a significant impact. In addition, technical provisions required for mitigation are modeled after California’s regulations and best practices for managing NOA-related work. These regulations and measures have been in place in California for approximately 20 years and we interpret that longevity as proof of their effectiveness. Further, though NOA was not explicitly studied in the 2005 EIS it did include air quality and hazardous waste mitigation measures. The proposed NOA mitigation measures for the BCB project fall under and further strengthen existing mitigation measures.

FHWA/NDOT have determined the studies performed in support of the 2014 re-evaluation have allowed us to adequately assess and address the potential impacts the presence of NOA in the BCB project area may have. Therefore, the 2005 EIS and Record of Decision (ROD) remain valid and a SEIS will not be prepared for this project.

Friends of Boulder City email with Embedded Responses

From: Friends BoulderCity [mailto:thefriendsofbouldercity@gmail.com]
Sent: Tuesday, November 04, 2014 4:48 PM
To: Lorenzi, Tony R
Subject: Comments regarding the Boulder City Bypass

Dear Mr Lornenzi,
Project Manager
Nevada Dept. Of Transportation (NDOT)
tlorentzi@dot.state.nv.us

Ref: Comments on the I-11 Boulder City Bypass-Public Information Meeting Handout (PIMH)

We respectfully submit the following comments for your consideration:

The overall presentation seems to minimize the potential effects that even relatively small concentrations of asbestos in soil can produce in terms of potential airborne emissions.

According to Appendix F, of a May 2008 document from the California Office of Environmental Health Hazard Assessment (OEHHA) (*oehha.ca.gov/air/hot_spots/2009/**AppendixFasbestos**)* a single asbestos fiber weights somewhere between 0.000005 and 0.00015 micrograms (ug), but notes that OEHHA customarily uses 0.00003 ug/fiber. Thus one pound, or 454 grams using metric units, of soil containing 0.25 % asbestos could conceivably contain

454 grams X .0025 (0.25%) = 1.1350 grams of asbestos

Converting this amount to micrograms we get 1,135,000 ug, and dividing by 0.00003 ug/fiber, this translates into potential emissions of over 37,000,000 fibers. Note that fibers is per pound. If one multiplies this by thousands of tons as will occur the value becomes enormous.

While we realize this is theoretical treatment, there is no evaluation presented in the PIMH that seems to rigorously address this as a potential problem that could have a major potential outcome. Instead general statements are made that seem more focused on minimizing fears rather that presenting data.

Response: *Although the mathematical example provided is not entirely accurate or rigorous, the ultimate point – that soil containing 0.25% asbestos by mass could contain significant numbers (millions) of asbestos fibers that could be released to the air under disturbance activities – is correct and one that is well-recognized by the BCB project team and supported by measured soil and rock NOA data collected from the BCB area. Indeed, it is because of this that NOA mitigation requirements are applicable project-wide, not just in areas where soil concentrations show the highest levels of NOA. Contractors are required to implement appropriate mitigation measures and employ personal and perimeter monitoring in all active BCB construction zones. In addition, because potential human exposures are based on air concentrations (not soil concentrations), ongoing monitoring efforts will use personal monitors to measure air*

concentrations in the breathing zone of the worker and will use perimeter monitors along the boundary of the construction zone to monitor air concentrations to assess the effectiveness of mitigation measures and make adjustments as appropriate to limit NOA concentrations in the air. NOA is a pre-existing condition, being detected in current ambient air (pre-construction), and the mitigation measures are designed to keep the overall asbestos cancer risk within acceptable risk range.

Related to this, while it is noted that concentrations of asbestos in soil above 0.25% are considered "Restricted Material" according to the California Air Recourses Board, and concentrations above 1.0 % is the level which defines a material as Asbestos Containing Material (ACM) by OSHA, there is no explanation why these values were chosen by these agencies and it might be assumed by some that these values are somehow in the "ball park" of being safe.

In fact , the basis of both of these values are simply the approximate lowest concentration that was found to be feasible to routinely measure with the Polarizing Optical Microscope and there are other opinions regarding this even detecting 0.25 % may be beyond the level of performance of many if not most labs to reliably detect. For example, paragraph 8, of the EPA Region 8 document entitled Sampling and Analysis at Libby (Montana) it states that Polarized Optical Microscopy "can differentiate between asbestos types, but cannot reliably detect asbestos in low concentrations (below one percent)." (http://www2.epa.gov/region8/sampling-and-analysis-libby. similar opinions are noted in the interpretations of feasible detections from OSHA if you look at origins of the test methods used for workers.

Response: *The BCB project team recognizes that neither the 0.25% limit specified by the California Air Recourses Board (CARB) nor the 1% limit used to define ACM by the Occupational Safety and Health Administration (OSHA) is a risk-based threshold. As correctly stated in the comment, these limits are defined by the detection limits of the polarized light microscopy (PLM) method, which is not well-suited to quantify low levels of asbestos. However, the State of Nevada does not have any regulations that are specific to NOA materials and there are no other federal limits, beyond what is specified in OSHA, as to soil-based asbestos thresholds. As such, we have chosen to model our project limits based on the NOA-specific requirements established by CARB, as these are the only regulatory limits available which are directly applicable to the BCB project.*

There leads to a discussion of the use of the word "only" in the Answer to Question 2 (*FAQ Sheet)*. In particular even if "only" 1 percent and 4 percent of the samples had concentrations above 1 %, as is noted in the PIMH, that could be potentially be alarming and using words like "only" seem to understate that potential effects that asbestos may have on this project that could conceivably make this project infeasible to complete.

Response: *The use of the term "only" was simply to highlight that NOA concentrations in soil are generally low and that concentrations higher than 1% do not occur frequently. As clearly stated in the fact sheet, the value of 1% "does not have a 'safe level' significance" and "the amount of NOA in natural material, like soil and rock, is not a direct indicator of safe levels of NOA in the air".*

Lastly there is a statement in the answer to the third question of the PIMH that says "even very large concentrations of asbestos (such as found in California) produce negligible levels in the air. We "believe the NDOT should produce data that's shows this to be true. Much of the data from Hunter's Point located near San Francisco showed very high concentrations of asbestos were emitted on some days and the data (see the historical data also) available online at the currently being completed Calaveras Dam Replacement Project CDRP (http://www.sfwater.org/index.aspx?page=530), located near the town of Sunol, shows exceedances of the acceptable air concentrations are routinely occurring in the air monitoring stations surrounding the dam on an almost daily basis- including Station A5 located in the town of Sunol located approximately 8 miles away!

Response: *This statement has been taken out of context. In the fact sheet, it states that "if controlled during construction using established mitigation methods" even high source levels of NOA can produce negligible levels in air. The data from the CDRP illustrate this point; in general, the construction mitigation measures have been effective in limiting airborne releases and keeping long-term cumulative average concentrations below the established project thresholds. However, these data also demonstrate that when mitigation measures are not effective, significant airborne releases can occur. That is why we will be imposing strict mitigation requirements, to minimize the release of NOA-containing dusts, and this is why we will be requiring extensive, daily air monitoring to quickly recognize when additional mitigation is necessary to protect workers and limit offsite releases.*

In summary, we respectfully submit that using the 0.25% asbestos criteria to define soils as likely to have minimal impacts or even OK to use for road base is unproven in any substantial way and because of this we suggest some additional evaluation be completed regarding the feasibility of completing the work without causing excessive airborne emissions of asbestos before moving forward.

Response: *As noted above, the 0.25% asbestos criterion is not being used to delineate areas where "minimal impacts" would occur or where mitigation measures or monitoring is not required. Mitigation requirements will be based on measured air concentrations, which is a more reliable metric of airborne emissions and more important determinant of potential human exposures. Employing the 0.25% limit for material usage on the BCB project is consistent with available NOA regulations. In addition, in applying this criterion, we are ensuring that post-construction surface conditions within the BCB area will be similar to, or lower than, NOA conditions that were naturally present in the area under pre-construction conditions. NOA is a pre-existing condition in the Boulder City vicinity not caused by the BCB project and is already in the air and soils. BCB construction mitigation measures have been designed to minimize increases above ambient levels.*

Regards,

The Friends of Boulder City

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*this address may need to be copied to the address bar to be linkable