

4.0 EVALUATION OF AREAS OF POTENTIAL SEDIMENT AND DEBRIS FLOW

As part of the SMP, a debris-flow hazard survey was conducted to identify areas of erosion susceptibility and channel instability. The areas of interest were those that are in active alluvial fans and those that are receiving active debris flows. The geographic focus of this survey is on the upland areas of the Franklin Mountains that are undergoing active alluvial fan sediment transport. This survey was conducted at the reconnaissance level to intermediate level of investigation and may have served to identify areas for future site-specific studies when evaluating debris-flow hazards and potential mitigating measures. This survey examined an area of over 100 square miles and identified areas that are developing active debris flow processes. Additionally, the survey identified areas that are under active erosion and are considered areas of elevated risk for chronic sedimentation. The full survey can be found in Appendix C.

Areas of active or potential debris flow along with areas that were undergoing active alluvial erosion and sediment transport are shown on Figures 4-1 through 4-4. Areas of proximal (high sediment/debris flow risk), medial (medium risk), and distal (relatively low risk) alluvial fan development in the Franklin Mountains region are shown on Figure 4-5. These figures are tools for planning of stormwater and sediment transport mitigation infrastructure per recommendations detailed in Appendix C.

The areas mapped as active debris flow should be the first priority for planning efforts in designing and constructing stormwater infrastructure. The secondary priority is areas mapped as alluvium where active sediment transport is occurring. These alluvium areas should have hydrologic studies as an integral part of planning for stormwater infrastructure. Several areas were identified where debris flows and erosion were chronic and indicated a critical need for mitigating infrastructure. Sediment control basins for these identified areas were included in the project alternative development.

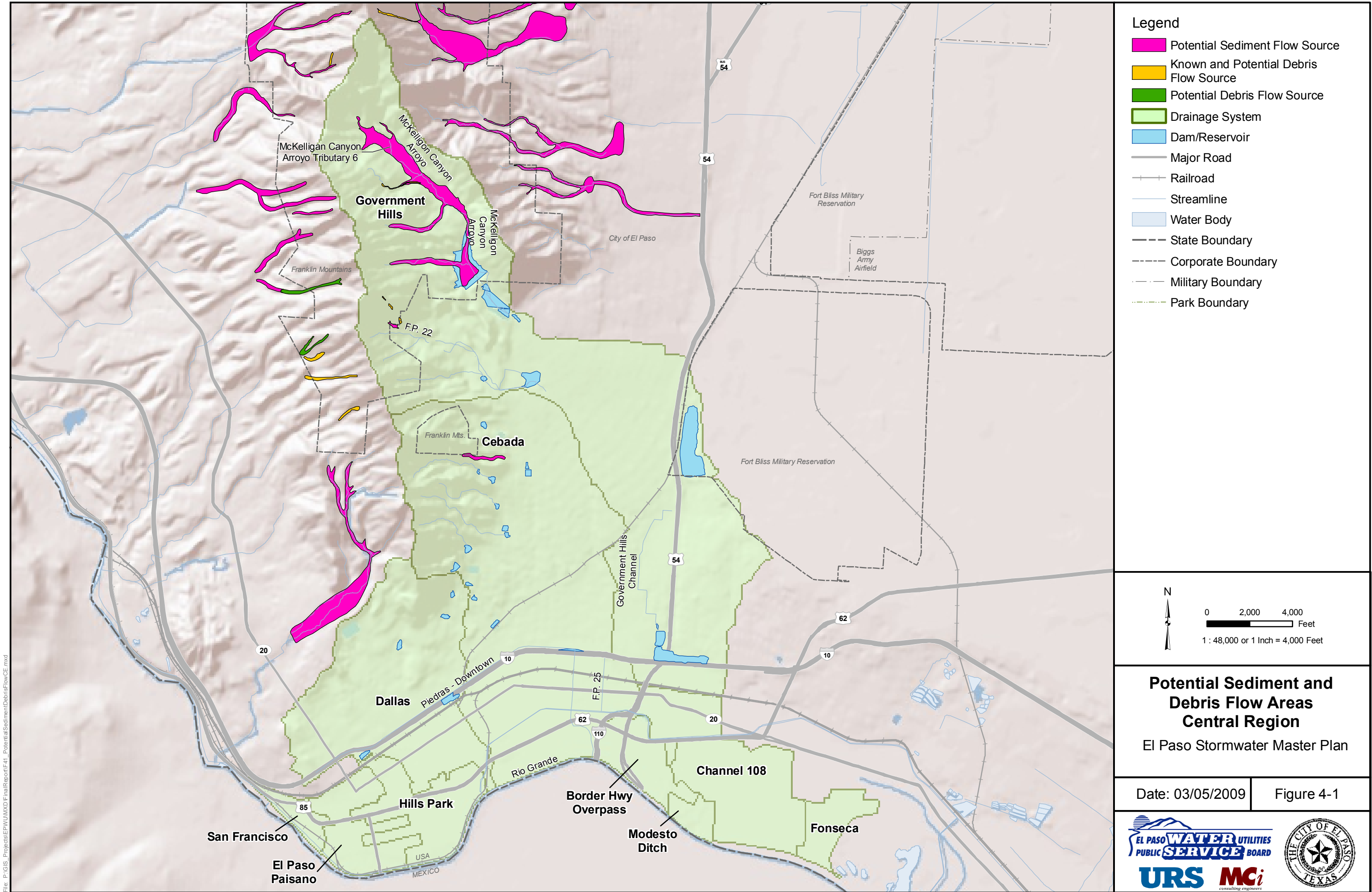
The first priority actions should be to address the potential sources of debris identified in Figures 4-1 through 4-4. Debris originating from these areas is judged to potentially form high velocity, high density, and rock-laden flows that potentially pose a major risk to lives and property located downstream. URS has developed concept designs for debris basins to control these sources, which are included as Priority A (for safety) projects in the CIP. These projects include WC1, WC2, WC8, NW28, and NW30. There should be a high priority site-specific study of these areas to ascertain more accurately the immediacy and extent of the risk. This study may result in the elevation of several of these projects into early execution.

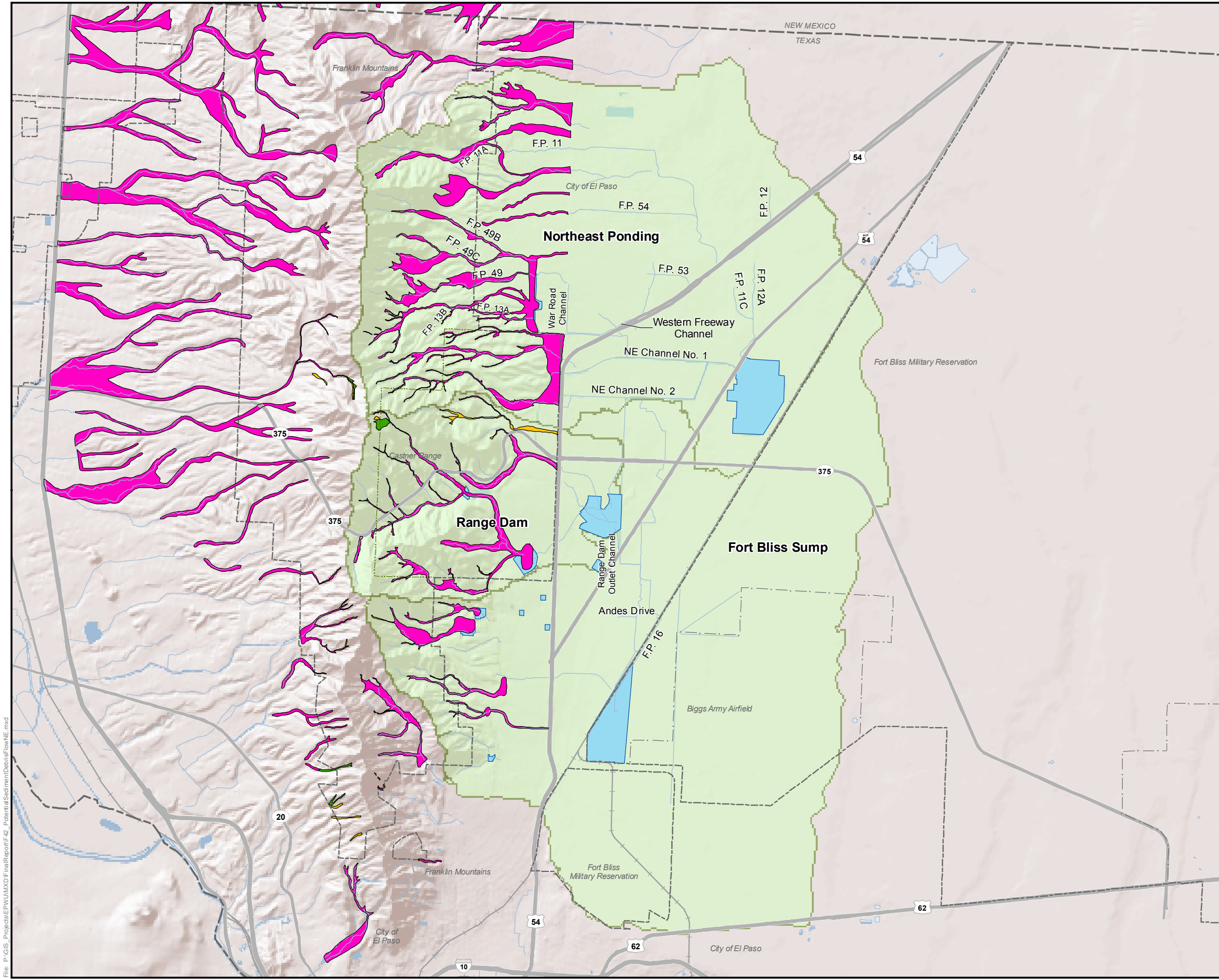
The second priority is to address upstream sediment sources. The primary risk is that future sediment flows will be mobilized from these sources, proceed downstream, plug existing bridge and culvert openings, and cause road closures and added real property flooding. Maintenance costs following such events are large, making control of these sources not only a damage prevention measure but also a cost-avoidance measure.

Figure C-10 in Appendix C shows locations where sediment basins would intercept the identified sources. The following projects have been developed to intercept sediment flow from identified sources: NE5, NE8 Phase 1, NE7 Phase 3, NW2 Phase 2, NW5, NW11, NW11a, NW19, NW21, NW25, and WC2. It is recommended that control of the sources identified on Figure C-10 in Appendix C be considered in the permitting of development potentially impacted by sediment flows from these sources.

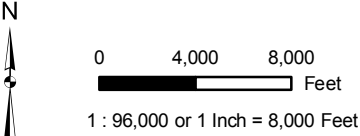
Projects for the control of sediment inflow into the East Side (and downstream Mission Valley) Regions were developed separately from the mapping effort (discussed in Appendix C) performed for the Franklin Mountains. These projects include EA2, EA9 Phase 1, and EA10 Phase 1.

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- Legend**
- Potential Sediment Flow Source
 - Known and Potential Debris Flow Source
 - Potential Debris Flow Source
 - Drainage System
 - Dam/Reservoir
 - Major Road
 - Railroad
 - River, Stream, Canal
 - Water Body
 - State Boundary
 - Corporate Boundary
 - Military Boundary
 - Park Boundary

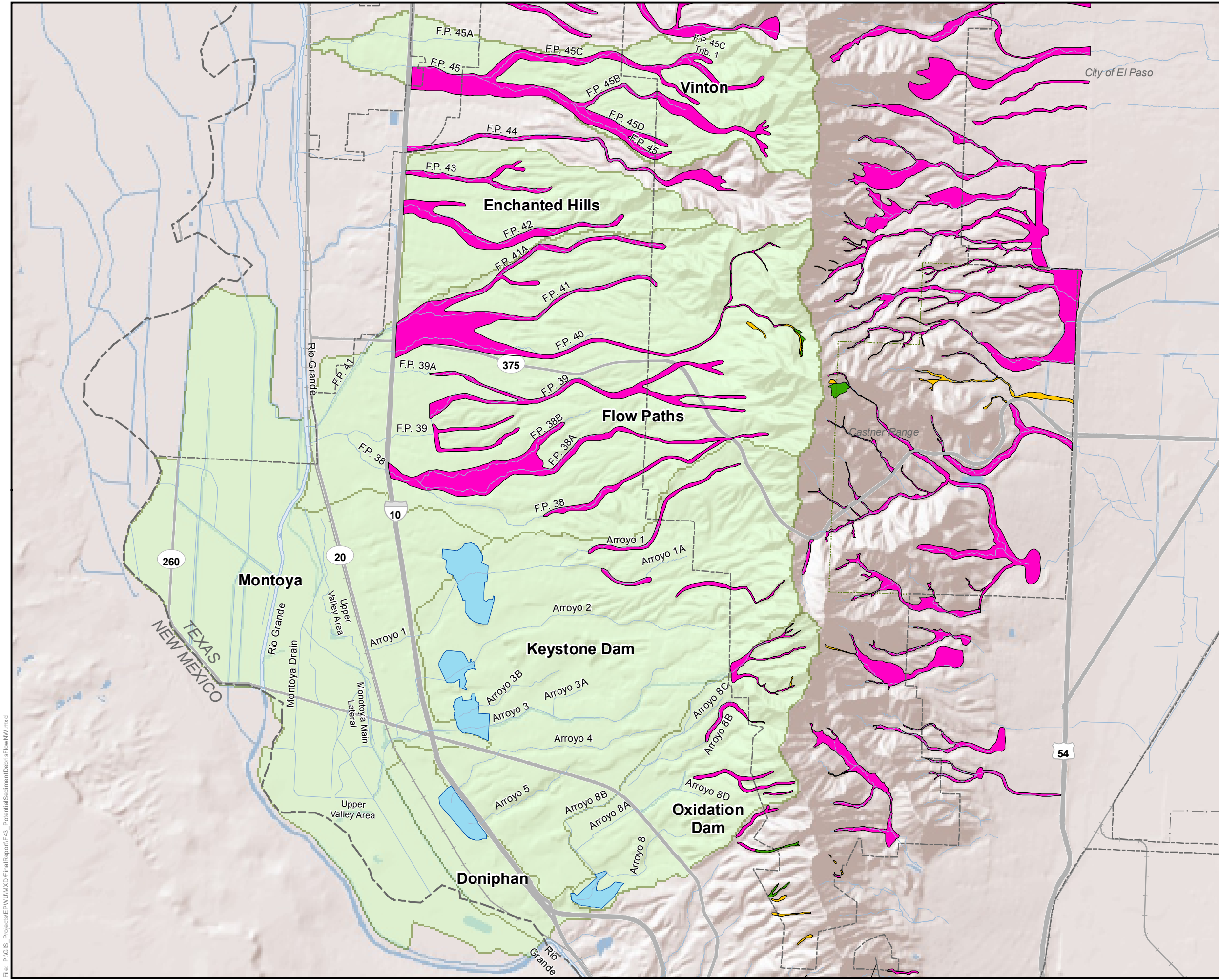


Potential Sediment and Debris Flow Areas Northeast Region
El Paso Stormwater Master Plan

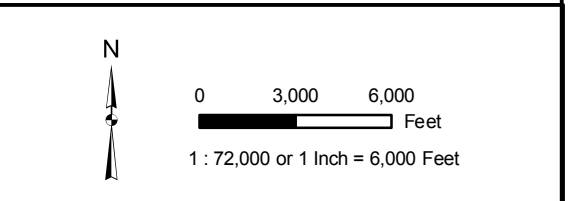
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- Legend**
- Potential Sediment Flow Source
 - Known and Potential Debris Flow Source
 - Potential Debris Flow Source
 - Drainage System
 - Dam/Reservoir
 - Major Road
 - Railroad
 - Streamline
 - Water Body
 - State Boundary
 - Corporate Boundary
 - Military Boundary
 - Park Boundary



Potential Sediment and Debris Flow Areas Northwest Region

El Paso Stormwater Master Plan

Date: 03/05/2009 Figure 4-3



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