APPENDIX E

WATER RESOURCES

Appendix E
Water Resources Additional Information – Within the Study Area

The construction of Northern Parkway will have significant impacts to the drainage patterns in the area especially on the west portion of the project. The improvements include drainage channels, pipes, and catch basins that will complement the regional drainage facilities proposed by the Flood Control District of Maricopa County.

MODIFIED SURFACE WATER HYDROLOGY

The existing New River Bridge is expected to remain in place throughout the construction of the new facility. The SR 303L freeway would join the existing freeway segment at Bell Road and continue southward past Northern Avenue and terminate at I-10. SR 303L would involve a regional flood control channel (25-foot bottom width trapezoidal channel) along the west side to collect flows from all of the west-east arterial streets and the various agricultural fields to the west of the new freeway. The SR 303L channel would continue south from the planned Northern Parkway interchange to the Gila River.

SR 303L CONCEPTUAL DESIGN

New off-line retention basins, near the SR 303L interchange with Cactus Road and Northern Avenue, would capture and attenuate offsite flows up to the 100-year rainfall-runoff event. Flows exceeding the 100-year frequency would be attenuated and diverted southward. Onsite runoff from the new SR 303L/Northern Parkway interchange would be collected into onsite detention basins and routed westward and southward in the SR 303L channel (URS Drainage Report 2006b). These engineered improvements would limit the eastern transmission of surface water (east of the SR 303L channel) to less than the current 100-year projected runoff.

The new channel would be located on the west side of Reems Road. The unlined trapezoidal channel would have a 40-foot bottom width and a 6-foot depth. It would collect flows from all of the west-east arterial streets and the various agricultural fields to the west of Reems Road. A new off-line detention basin just north of Olive Avenue would attenuate the 100-year flows down the channel. Flows in excess of the 100-year projected volumetric rate would not be transmitted east of this point. This channel is presently being designed, and construction is expected to precede construction of the new facility (URS Drainage Report 2006b).

This channel was planned by the Flood Control District of Maricopa County (FCDMC) as part of the SR 303L-White Tanks Area Drainage Master Plan (ADMP). The trapezoidal channel would

be oriented parallel to the north side of Northern Avenue, from one-half mile west of Sarival Avenue to Reems Road.

The SR 303L channel has been classified as a very low priority on the FCDMC list of ADMP planned drainage improvements.

WOOLF CREEK CHANNEL CONCEPTUAL DESIGN

The FCDMC and the Maricopa County Department of Transportation are working with Woolf Development to meld the Northern Avenue channel concept into the planned residential and commercial development north of Northern Avenue.

The Woolf Crossing development would include a mix of residential and commercial development bound by Northern Avenue, Olive Avenue, SR 101L, and Reems Road. The Northern Parkway corridor would bisect that development. The developer has begun coordination with government agencies regarding planned drainage improvements in this area (URS Drainage Report 2006b). The need for this channel would be greatly diminished once the drainage facilities for Northern Parkway are constructed (URS Drainage Report 2006b).

BURLINGTON NORTHERN SANTA FE RAILROAD (BNSF) CHANNEL CONCEPTUAL DESIGN

The BNSF Channel is in the SR 303L-White Tanks ADMP and would start at Thunderbird Road, drain southward, and discharge into the Dysart Drain. This channel would be positioned along the west side of the BNSF Railroad spur midway between Bullard Avenue and Litchfield Road (URS Drainage Report 2006b).

The planned channel would have a 15-foot bottom width, and 9-foot depth. A new off-line detention basin is planned just north of Olive Avenue, to the west of the planned channel. FCDMC anticipates that the channel and basin construction would occur after the parkway is constructed. The channel would divert all of the 100-year flows that presently overtop the railroad embankments to the north. This would effectively increase the inflow to the Dysart Drain at the BNSF channel confluence. The Dysart Drain would most likely need some modification to contain that extra flow (URS Drainage Report 2006b).

AGUA FRIA RIVER WATERCOURSE MASTER PLAN

The FCDMC has an adopted Agua Fria River Watercourse Master Plan. The Master Plan addresses flood control and public safety concerns, adds recreational opportunities and open space, accommodates existing economic activities, creates channelized streambeds, and

potentially transforms the floodplain designation for more than 3,000 acres of land along the river to mitigate flooding and support recreational and other development (Valley Forward 2005).

The FCDMC, however, does not have any plans to implement that channel work. The river master plan would be used as a guide for the in-stream mining operations to remove materials where the channel is anticipated. The excavation; however, would occur over an extended time that might not coincide with the anticipated proposed project's improvements (URS Drainage Report 2006b).

EXISTING FACILITIES AT ALTERNATIVE 1 AND 2 ALIGNMENT

The FCDMC maintains an operational flood detention basin at Reems Road and Northern Avenue. The detention basin was incorporated into a golf course that is now operated by Luke AFB.

FUTURE FACILITIES AT ALTERNATIVES 1, 2, AND 3 ALIGNMENT

The FCDMC has a river channelization master plan that includes the study area; however, channel improvement has been pushed several years and is not considered immediately relevant to this report. The river master plan would be used as a guide for the in-stream mining operations; including limiting sand and gravel mining to limited areas where channel improvement is anticipated. Material mining would occur; however, over an extended time that might not coincide with the anticipated new facility improvements (URS Drainage Report 2006b).

The FCDMC has no immediate need for the floodway to be improved; therefore, channel work is not anticipated to occur concurrently with the Northern Parkway project. An application would need to be filed for channel improvement design and construction. This application would be considered by the Flood Control Advisory Board for inclusion in the Five-year Capital Improvements Plan. Once the project has been selected and scheduled, an Intergovernmental Agreement can be negotiated to determine the construction costs and other long-term costs that each agency (FCDMC, MCDOT, and City of Glendale) would incur (URS Drainage Report 2006b).