Stormwater Management

City of Phoenix

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August 31, 2015

Transportation Planning & Programming Division
Street Transportation Department
Stormwater Management

- Floodplain Management
- Local Drainage Program
- Small Project Assistance Program (SPAP)
- Master Drainage Planning
- Capital Improvement Projects
- Grant Program Applications
- AZPDES/NPDES Permit
- Dam Safety Program
Floodplain Management

• Regulate *private development and public infrastructure projects*:
  
  – Code of Federal Regulation (CFR)
  – Federal Emergency Management Agency (FEMA)
    • National Flood Insurance Program (NFIP)
    • Community Rating System (CRS)
  – State Standards, Arizona Dept. of Water Resources
  – Chapter 32B – Floodplains, Phoenix City Code
  – Storm Water Policies and Standards Manual

• 100 YEAR FLOOD
• Special Flood Hazard Area (SFHA)
• Flood Insurance Rate Rate Maps (FIRM)
Floodplain Management

FLOOD HAVING A 1% CHANCE OF BEING EQUALLED OR EXCEEDED IN ANY GIVEN YEAR
Floodplain Management
Local Drainage Program

Goals and Objectives

• Reduce or eliminate local flooding
• Benefits small group of citizens
  • Cost-effective solutions
    • Limited resources
• Approximately $500,000/year
  • Short term benefits
Local Drainage Program

Goals and Objectives

• Local Drainage Database
• More than 650 Locations Citywide
• Funding via 2001/2006 Bonds
• Study, Design and Construction
• Cycle time is approximately 2 years
• Average cost is $750,000/project

Estimated Cost: $479 million
Local Drainage Program

Example Project
18th Street & Jefferson Street

Study 16k
Construction 38k
Total 54k

Street Maintenance Division

Completion 5 months
Local Drainage Program

Example Project
4942 East Lakepoint Court

Study 16k
Construction 49k
Total 65k

Design & Construction Management Division

Completion 23 months
Local Drainage Program

Example Project

60th Street and Hollyhock Street

Study $35K
Construction $471K

Total $506K

Design & Construction Management Division
Completion 18 months
Small Project Assistance Program (SPAP)

Flood Control District of Maricopa County (FCDMC)

- Cost share program started in 2011
- Reimburse up to $250,000
- Construction costs only
- Must complete within 12 months
- Funding cannot be carried over to next FY
Small Project Assistance Program (SPAP)

Number of Projects: 24
(2011-2016)

City Cost share: $10.2 million
FCDMC Cost share: $5.6 million

Total Construction Cost: $15.8 million

Average cost / project: $660 K
Master Drainage Planning

• **Large Planned Community Districts (PCD)**
  – Drainage Infrastructure review & approval
  – Subdivision plan review

• **Area Drainage Master Study (ADMS)**
  – Hydrology & Hydraulics review
  – Alternatives Analysis & Concept Designs

• **Capital Improvement Projects**
  – Multiuse Mitigation Projects
  – Flood Control District of Maricopa County
Master Drainage Planning
Master Drainage Planning
Capital Improvement Projects

- METRO ADMS
- 90 sq. miles
- Downtown SD Projects
- $12.0 M
- FCDMC cost share of $6.0M
Capital Improvement Projects

## Durango ADMP ($42.7M)
- DRCC – Phase II
- Sunland Avenue Channel
- 47th Avenue Channel System

## Arcadia Drainage Projects ($24.9M)
- 40th Street Storm Drain
- Arcadia Drive Storm Drain
- Camelback Road Storm Drain
- Lafayette Blvd. Storm Drain

## METRO ADMP ($344.7M)
- Downtown Storm Drains (north of railroad)
- Durango Curve basin
- Encanto Park Golf Course Basin
- Palo Verde Golf Course Basin
- 15th Ave Storm Drain (Palo Verde Golf Course to Butler Dr.)
- 21st Ave Storm Drain (Encanto Golf Course to Northern Ave)
- 15th Ave Storm Drain (Encanto Golf Course to Grand Canal)
- 3rd Ave Storm Drain (Encanto Golf Course to Bethany Home Rd)
- Thomas Rd Storm Drain (Encanto Golf Course to 24th Ave)
- McDowell Road Storm Drain (ADOT SWI to 15th Ave)
- Downtown Storm Drains (south of Railroad)
- Van Buren Street Storm Drain Project
- Thomas Rd Storm Drain Project (60th St. to Old Cross Cut Canal)
- Central Ave Storm Drain (Bethany Home Road to Arizona Canal)
- Jefferson Street/I-17 Storm Drain Project

## Other Projects ($82.8M)
- 20th Ave and Turney Basin
- Skunk Creek Levee at CAP
- 43rd Ave Storm Drain Outfall Project
- Pecos Basin Outfall Project
- Salt River Channelization at 67th Ave
- Palisene-Paradise Ridge Drainage Project
- Skunk Creek Channel at Pinnacle Peak Rd

Estimated Cost: $495.1 million
Capital Improvement Projects

South Phoenix/Laveen

Laveen ADMP ($18.1M)
• 43rd Avenue and Dobbins Basin
• 44th Avenue and Carver Basin
• 51st Avenue Storm Drain
• 51st Avenue and Dobbins Basin
• 51st Avenue and Elliot Road Basin
• Carver Hills Storm Drain
• Dobbins Road Storm Drain
• Western Canal Channel
• 67th Ave Channel
• Reservation Channel

Hohokam ADMP ($25.8M)
• Basin 5/Circle K Park
• 14th/15th Street Storm Drain
• Basin 1/Ardmore Road Storm Drain
• South Mountain/17th Way Storm Drain
• Basin 11 and Outfall Storm Drain
• 20th Street/Euclid Avenue Storm Drain
• 19th Street/South Mountain Avenue SD
• Basin 10/Head Scout Pueblo BSC

South Phoenix/Laveen ADMP ($26.6M)
• 27th Avenue/Dobbins Road Basin
• 27th Ave and South Mountain Ave Basin
• 7th Ave SD (Baseline Rd to SM Ave)
• 27th Ave SD (Baseline Rd to SM Ave)
• South Phoenix/Laveen Drainage Improvement Project

Estimated Cost: $70.5 million
Overall Funding Needs

Citywide

• Local Drainage / SPAP $479M
• Master Drainage / CIP $566M
• Trunk line SD Projects $702M
  (161 miles of Storm Drains)

Estimated Total : $1.747 billion
# Multiuse Mitigation Projects

## Citywide

<table>
<thead>
<tr>
<th>Name</th>
<th>Cost (millions)</th>
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<tbody>
<tr>
<td>10th Street Wash Basins 1 &amp; 2</td>
<td>$5.25</td>
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<td>10th Street Wash Storm Drain Project</td>
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<tr>
<td>23rd Avenue/Roeser Road Basin</td>
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<tr>
<td>24th Avenue/Camelback Road Detention Basin</td>
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<td>26th Avenue/Verde Lane Detention Basin</td>
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<tr>
<td>27th Avenue Storm Drain Project, Southern Avenue to Salt River</td>
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<tr>
<td>43rd Avenue SD Project and Baseline Road SD Project</td>
<td>$18.50</td>
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<tr>
<td>43rd Avenue/Baseline Road Basin</td>
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<td>43rd Avenue/Southern Avenue Basin</td>
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<tr>
<td>75th Avenue Storm Drain and Durango Regional Conveyance Channel – Phase I</td>
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<td>9th Avenue Storm Drain Project, Peoria Avenue to ACDC</td>
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<td>Aguila Golf Course Basin</td>
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<td>Arcadia Drive Storm Drain Project</td>
<td>$4.00</td>
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<td>Bethany Home Road Outfall Channel Project</td>
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<td>Downtown Storm Drain Project</td>
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<tr>
<td>Lafayette Boulevard Interceptor Drain Project</td>
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<tr>
<td>Laveen Area Conveyance Channel Project, 43rd Avenue to 79th Avenue</td>
<td>$20.50</td>
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<tr>
<td>Total</td>
<td>$211.50</td>
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**Cost:** $212 million
## Multiuse Mitigation Projects

*South Phoenix/Laveen*

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**Cost:** $66 million
Master Drainage Planning / CIP

Ongoing ADMS/P

• Pinnacle Peak West ADMP
• Cave Creek ADMP
• Middle Indian Bend ADMP
• Tempe ADMP
• Ahwatukee ADMP
Grant Programs Application

• Federal Emergency Management Agency (FEMA)
  • Pre-Disaster Mitigation (PDM) Grant
    Received a $25K for Updating Floodplain Management Plan (City share $35K)
  • Hazard Mitigation Grant Program (HMGP)
    Applied for a Property Acquisition Project for $379K (City share $95K)

• U.S. Army Corps of Engineer
  • Planning Assistance to States (PAS), Section 22
  • Continuing Authorities Program (CAP), Section 205
  • Floodplain Management Services Program (FPMS)
Grant Programs Application

• **Natural Resources and Conservation Service**
  • Emergency Watershed Protection Program (EWP)
    – EWP – Recovery
    – EWP – Floodplain Easement

• **Water Infrastructure Financing Authority (WIFA)**
  • Planning and Design Technical Assistance Funding
AZPDES / NPDES Permit

- AZPDES Permit, March 2009
- Liaison for Street Transportation Dept.
- Permit requirements for Compliance
  - Street Maintenance
  - Design & Construction Mgmt.
  - Transportation, Planning and Programming
  - Management Services
- Monthly Meetings with working group
- Bi-monthly Meetings w/ Executive Management
- Meetings with divisions as needed
- Coordinate compliance for the Dept.
Dam Safety Program

Federal Emergency Management Agency (FEMA)
Arizona Department of Water Resources (ADWR)

Street Maintenance Division

Flood Control District of Maricopa County
Dam Safety Program

Technical Assistance:

- Develop and maintain the Dam Safety Program
- Coordinate Intergovernmental Agreements for Dam Safety Projects
- Received more than 2 million dollars assistance
- Review Study, Design Reports, & Final Plans
- Participate in the Emergency Action Plans / Exercise
- Certified Responder

Detention Dam No. 7
Cost shared with Flood Control District of Maricopa County
Construction Cost $1.2 million
Questions?