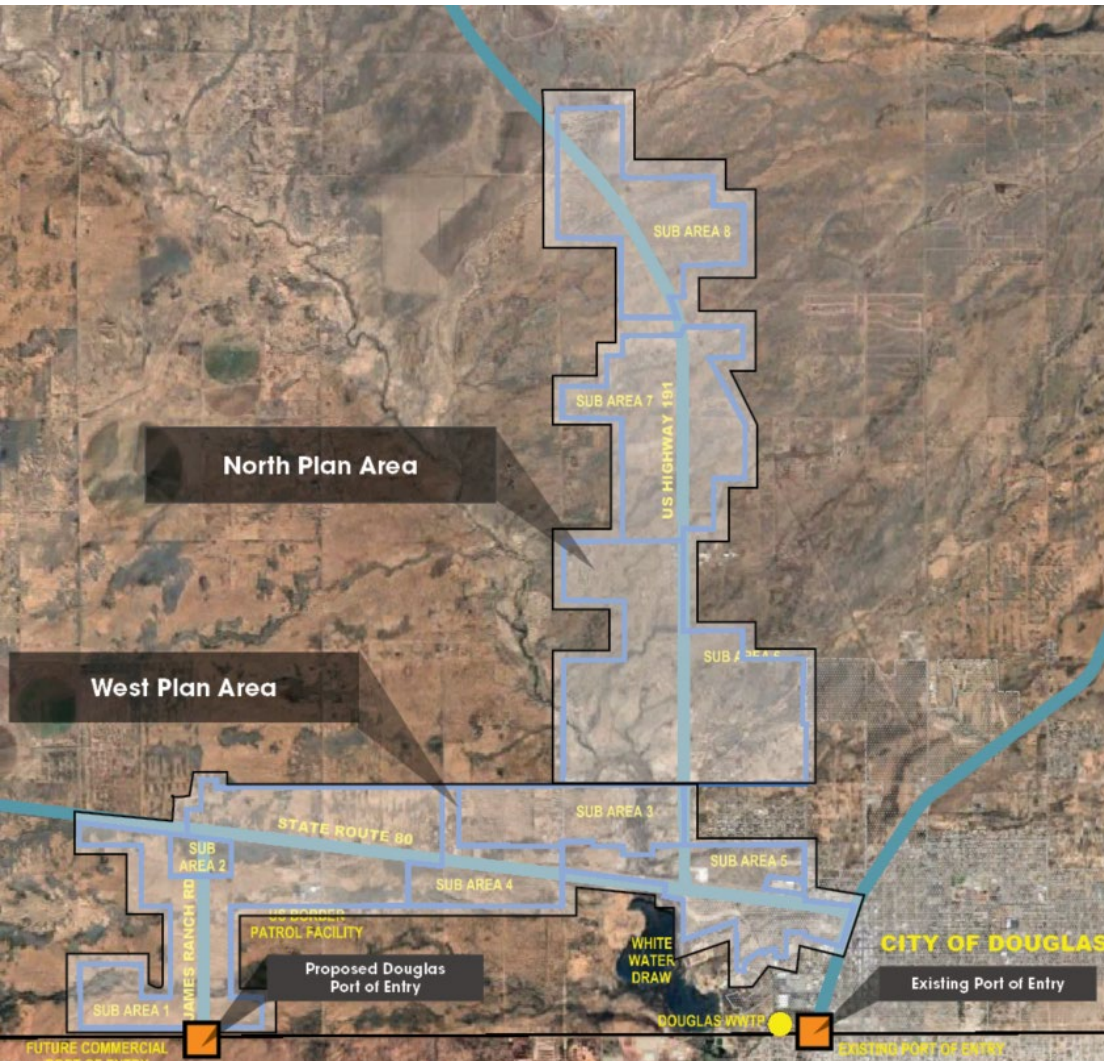




## Water & Wastewater Feasibility Study for Douglas Commercial POE

Presentation to the Cochise County Board of Supervisors | January 27, 2021 | Virtual Meeting



# Agenda

1. Introductions
2. Ports of Entry
3. Background Information
4. Water and Wastewater System Alternatives
5. Action Plan 2020-2025
6. Funding Approach
7. Discussion & Questions

Infrastructure for this project includes water and wastewater only to Serve Douglas POE and County Planning Areas

## Stantec Team

- Collen Ruiz P.E. – Principal, Community Development
- Jack Bryck P.E. – Principal, Process Engineering - Water
- Amy Broughton – Principal, Water Management Funding
- Bill Ferris - Vice President, Transportation

# Acknowledgements

## Cochise County

- Sharon Gilman
- Jackie Watkins
- Dan Coxworth

## City of Douglas

- Dawn Prince
- Alan Humphrey
- Luis Pedroza

# Familiarity with Ports of Entry (POE)



## Our team knows Ports of Entry

- Mariposa Land Port of Entry  
Expansion & Modernization  
Nogales, Arizona
- San Ysidro Land Port of Entry  
San Diego, California
- Otay-Tijuana Cross Border  
Xpress San Diego, California
- Arizona-Sonoran Border  
Master Plan
- Pedestrian Undercrossing  
Facility at Mariposa Land  
Port of Entry and SR 189



What's included?

# What is the Water and Wastewater Feasibility Report?

## 1. **Flows and Demand**

New Douglas POE

County Planning Areas

## 2. **Water/Wastewater Infrastructure**

Water System- Supply, Treatment and Distribution

Wastewater System - Collection, Treatment and Reuse

## 3. **Potential Site for On-site Facilities at Future Commercial POE**

Water System

Wastewater System

## 4. **Infrastructure Cost Estimates**

## 5. **Funding Opportunity Research**

## 6. **Water Practices Analysis and Summary**

## 7. **Cost-Benefit Analysis**

## 8. **Commercial and Residential Zoning/Growth Analysis**

## 9. **Action Plan 2020 to 2025**



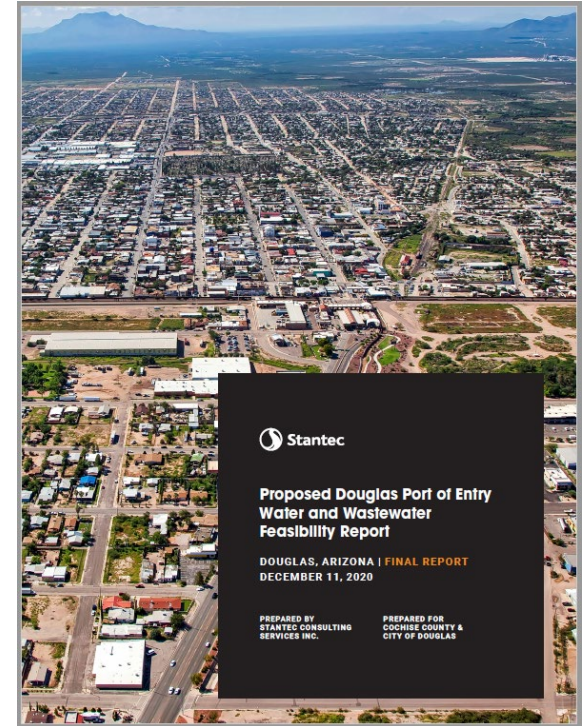
# Report Benefits

## What does it provide?

- Compares several alternative alignments
- Provides capital cost estimates
- Cost-benefit analyses
- Summarizes funding opportunities
- Water/Wastewater POE Action Plan

## Benefits:

- Analytical foundation for grant applications, state utility permitting processes, GSA, affected utilities (roads, power, communication, gas) and design
- Basis for conversations with prospective funding partners





# Approach to Capital Cost Estimates

- Concept development project screening, feasibility, concept evaluation, and preliminary budget approval
- Accuracy ranges of -35 % to + 65%



Where we started – Background Info



# Study Area

Water and wastewater infrastructure service to:

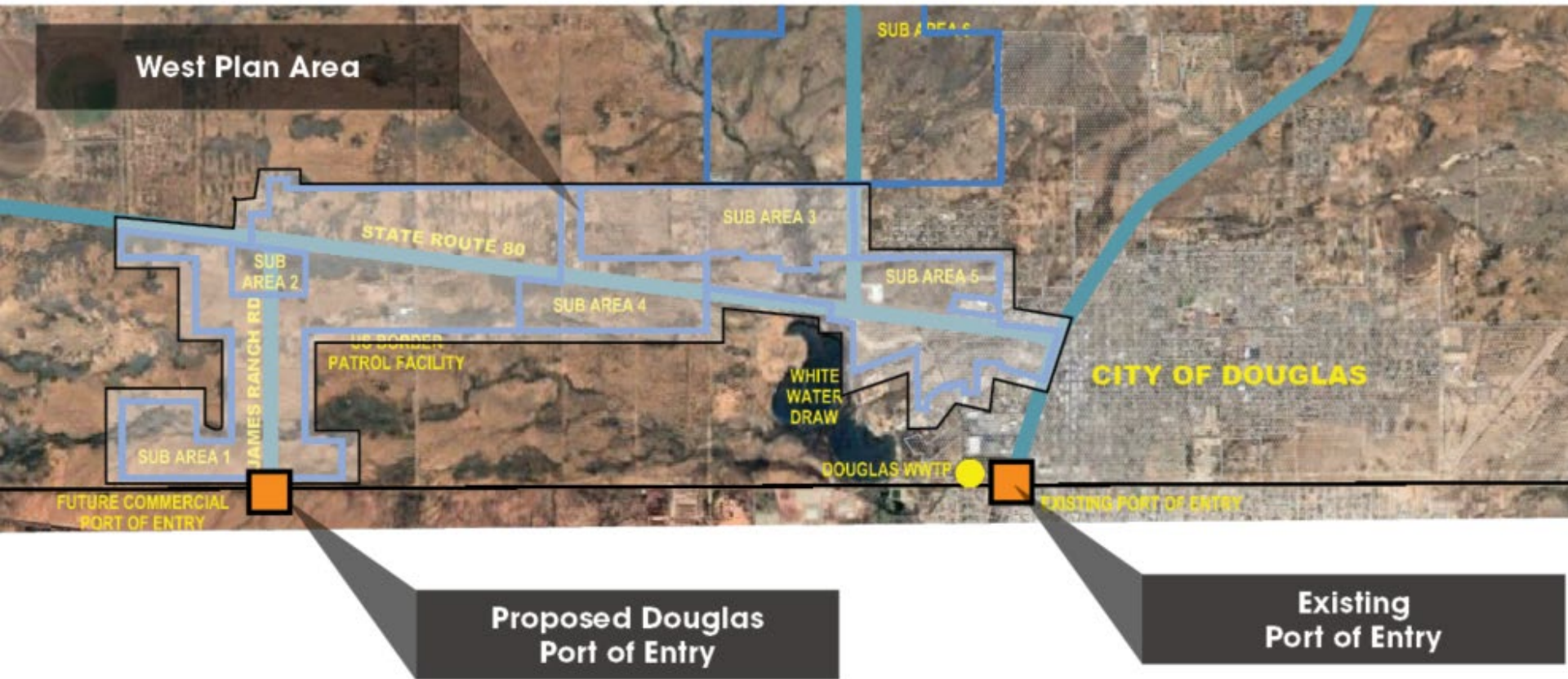
- Douglas POE (Proposed 80 acres)
- County Identified Planning Growth Areas (7,630 acres) (City of Douglas current area is about 6,400 acre)
- County Zoning:
  - B-Developing (Residential/ Commercial Industrial)
  - C-Developing (Commercial Industrial)
  - B-Enterprise (Commercial Industrial).





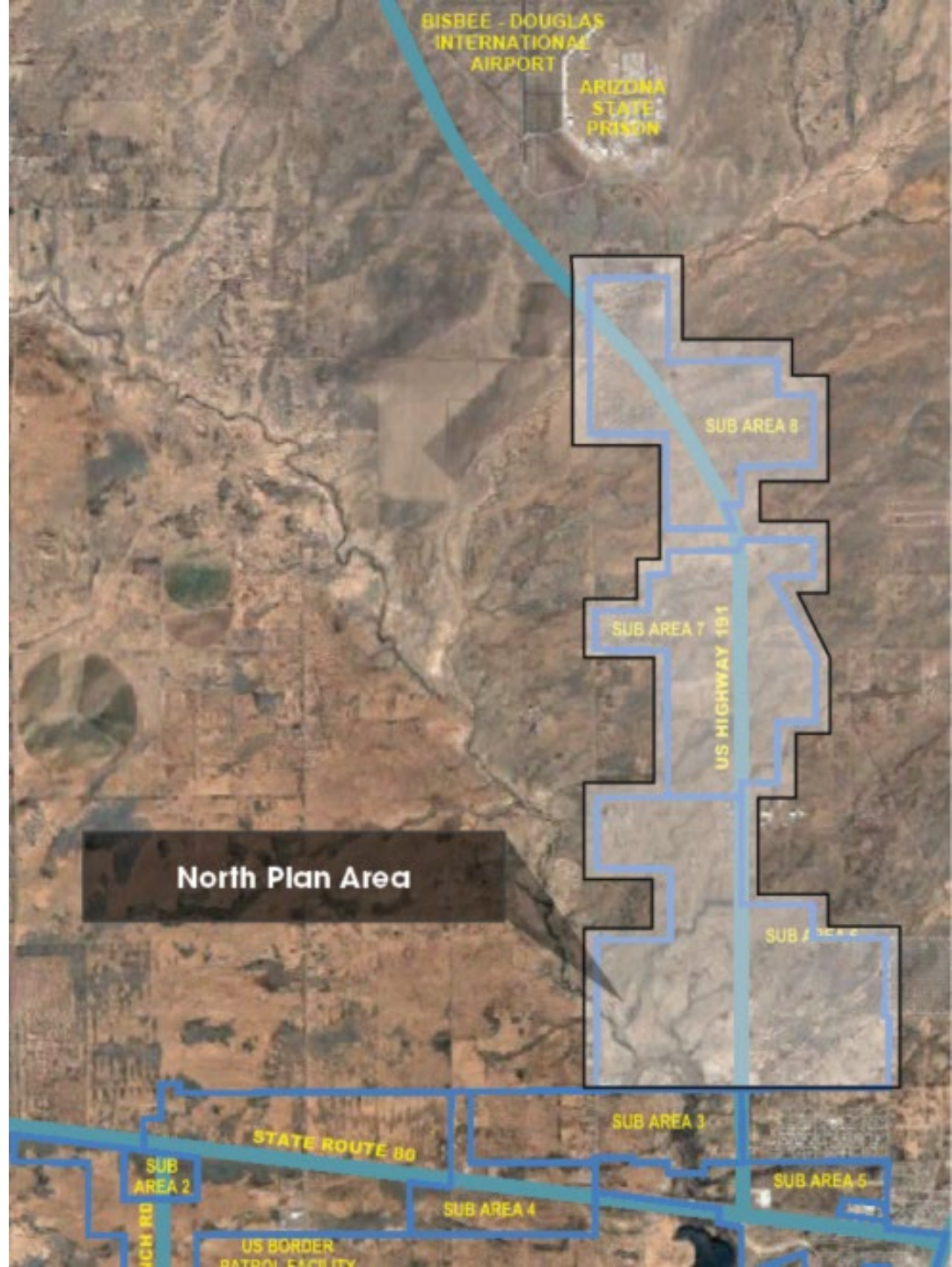
# West Plan Area

Along State Route 80 to West boundary of the City and down James Ranch Road to future POE



# North Plan Area

Along US Highway 191,  
North of the Douglas to  
BDIA



# Projected Growth

1. Total Planning Area = 7,630 acres
2. Anticipated 2%\* growth rate  
\* Arizona Office of Employment and Population Statistics
3. Planning Goal – realized 30 years from now
4. Full build-out is estimated at 200 years





# Potential On-site POE Water and Wastewater System

## **Both systems located on the 80-acre POE site:**

- *Water System:*
  - Groundwater well, chlorine treatment, storage tanks, a fire suppression system
  - Estimated most probable capital cost of \$5.7 M with a range of \$3.7 - \$9.4 M.
- *Wastewater System:*
  - Collection system, advanced wastewater treatment system, treated effluent to ground disposal system
  - Estimated most probable capital cost of \$3.4 M with a range of \$ 2.2 - \$5.6 M.

# Regional Economic Considerations, Implications, and Opportunities

## Increase to Residential Demand

There will be significant residential demand that cannot be adequately met with the housing stock in Douglas

### Demand:

- 600-650 Correctional Officers
- 500-600 Border Patrol Agents
- 100 CPB Officers (+ 100 CPB officers are new LPOE)
- 1,500-2,500 contractors expected on the LPOE projects

### Solutions:

- Manufactured Homes
- Build-for-Rent
- Hotels
- Downtown Redevelopment into Housing





# Economic Opportunities

## Cross-border shoppers

Table 2: Top Retail/Dining Destinations

Rank	Retail/Dining Destination	Summer	Fall
1	Mall	37.5%	46.3%
2	Ross	31.8%	23.0%
3	Walmart	22.8%	19.4%
4	Golden Corral	14.4%	17.6%
5	Target	11.7%	10.5%
6	Home Depot	8.4%	7.6%
7	Marshalls	7.8%	6.4%

## Potential increase in commercial cross border traffic and develop logistics operations

Measure	Port Name	2020	2019	2018	2017	2016	2015	2014
Truck Containers Empty	Nogales	53,083	66,136	60,317	62,755	66,659	64,922	58,334
Truck Containers Empty	Douglas	6,143	6,541	6,762	9,561	12,904	12,652	13,032
Truck Containers Full	Nogales	170,059	293,771	284,896	353,773	271,015	256,895	256,074
Truck Containers Full	Douglas	8,696	20,048	21,044	26,292	17,366	17,478	17,701
Trucks	Nogales	223,746	349,377	337,179	333,941	335,737	319,747	312,010
Trucks	Douglas	14,887	26,588	27,804	30,649	30,815	32,104	33,104



# Cost Benefit Analysis

## Assumptions & Inputs

- ✓ *Baseline*
  - Current cost structure from the annual financial report – operations & maintenance, debt service, depreciation
- ✓ *Costs*
  - Capital costs
  - O&M and repair & replacement
  - Annualized capital costs
- ✓ *Funding*
  - Partial grant funding and/or contributions from developers

## Benefits

- Economies of scale
- Economic stimulus
- Increased airport traffic
- Expansion of Cochise College

# Cost Benefit Analysis

## Additional Benefits

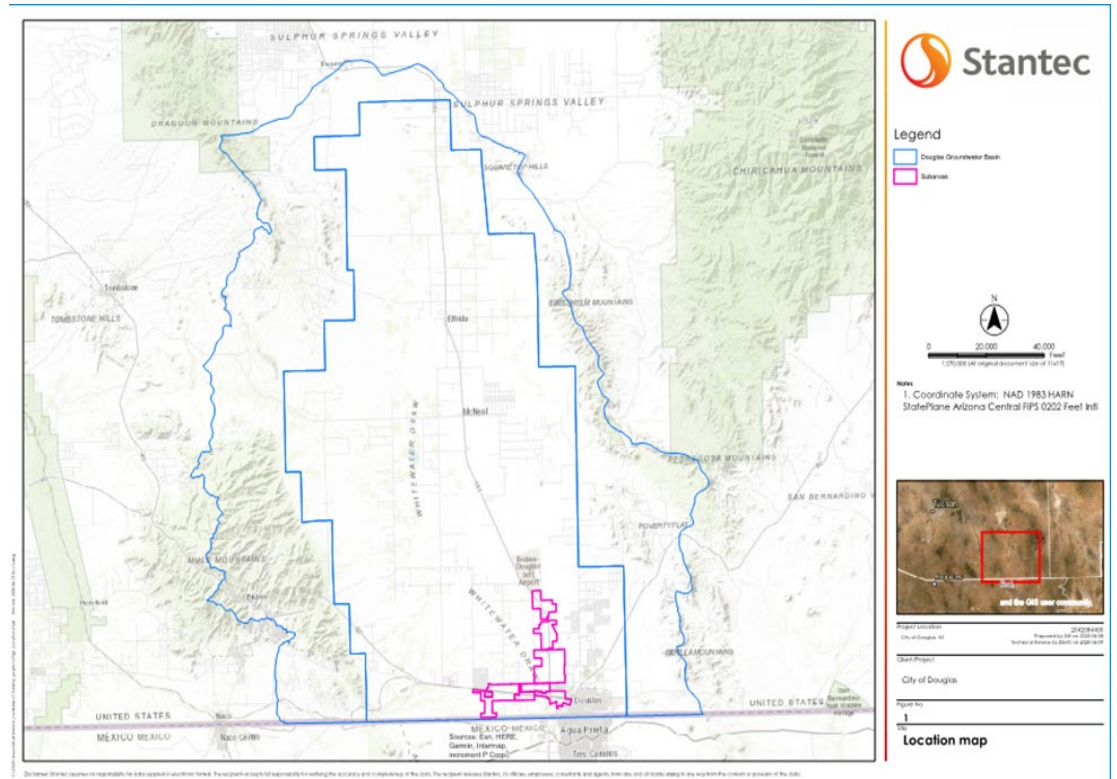
- Growth in the Local Economy
  - Addition of approximately 110 sustainable jobs, doubling to approximately 220 jobs
  - Increase of approximately \$10.8 million per year in economic activity, doubling to approximately \$20 million per year over time
  - Economic growth driven by increased traffic flow due to reduced wait times
- Increased Airport Traffic
  - Growth in local commerce leading to increased airport traffic
  - Associated with role as shipping and logistics hub for cross-border freight
- Expansion of Cochise College
  - Construction of water & wastewater infrastructure connecting College to City systems
  - Creates sufficient capacity to allow for growth in student population

Where's the water coming from?



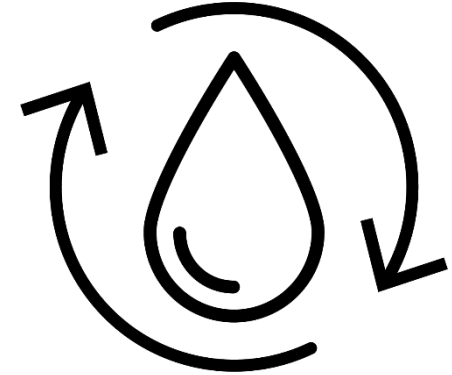
# Drinking Water Source to Serve POE/Plan Areas - Douglas Groundwater Basin

1. Basin Area is 950 square miles
2. Whitewater Draw
3. Recharge from runoff infiltration in mountains
4. 540 square miles designated for Irrigation/Non-expansion Area per ADWR





# Sustainable Water Use Initiatives



**Recognize the limitations and needs of the long-term sustainability of the Douglas Basin groundwater aquifer**

## **Initiatives Identified:**

- Utility Water Conservation Strategy
- Management Program – Universal Metering
- User Rate Incentives
- Water-Efficient Fixtures
- Low Water Uses Industrial Equipment
- Water-Efficient Landscaping and Irrigation
- Investigate a Rainwater Recovery Program
- Well Rehabilitation Schedule
- Investigate Effluent Groundwater Recharge
- Water Accountability Program
- Groundwater Numerical Model
- Water Conservation Education Program

# Community Water System

# Water Supply Alternatives

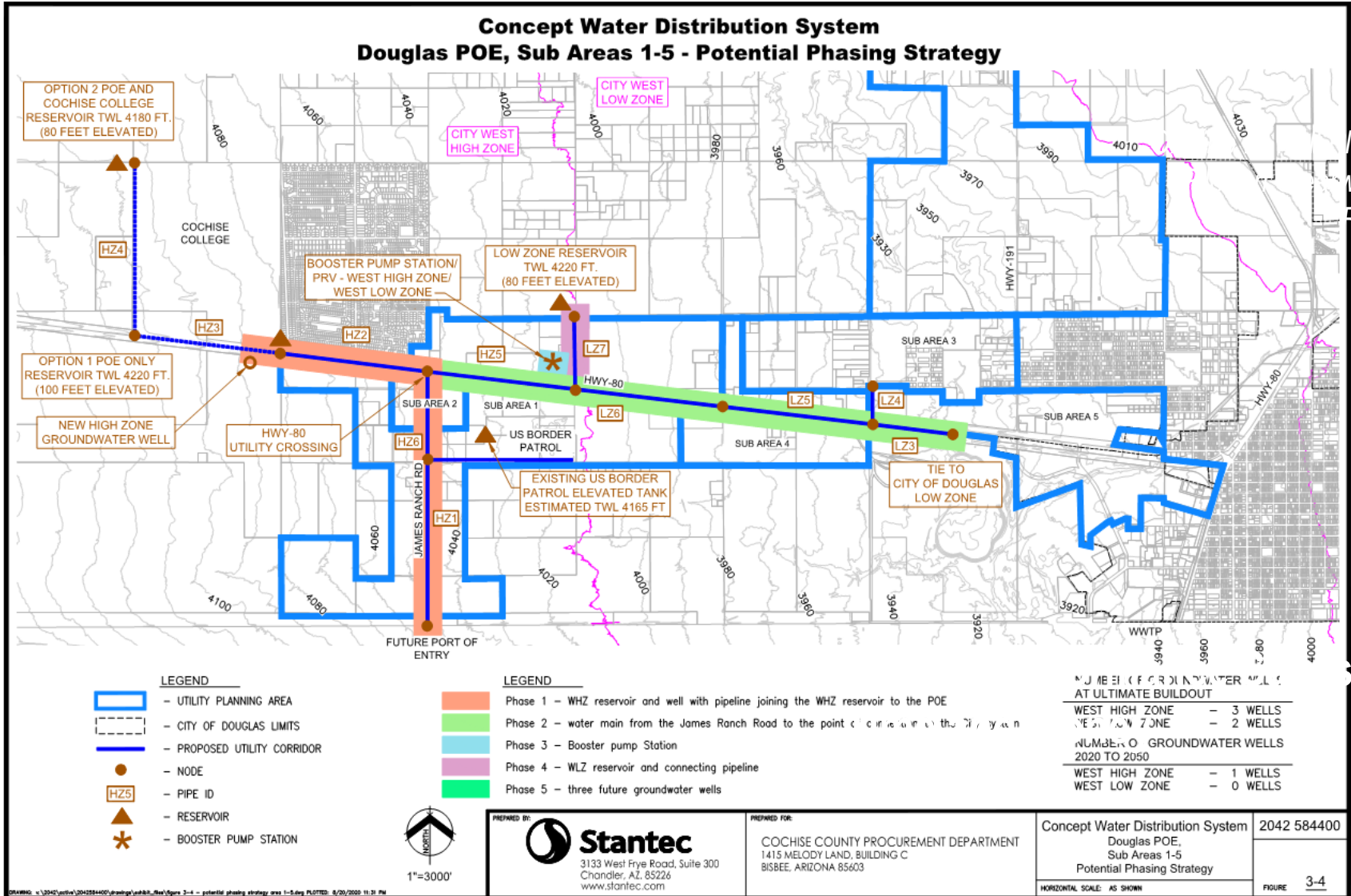
**Approach: Connect to City water system - new water supply wells, new storage tanks, and new distribution system piping.**

1. POE Onsite water system  
(Within POE 80 Ac Site)
2. Community water system- Serving the POE and West Plan Area (SR 80 James Ranch Road to City)
3. Community water system- Serving the POE, Cochise College and West Plan Area (SR 80 James Ranch Road to City)
4. Dedicated water system to serve only POE
5. Community water system –  
Serving North Plan Area (City to BDIA)

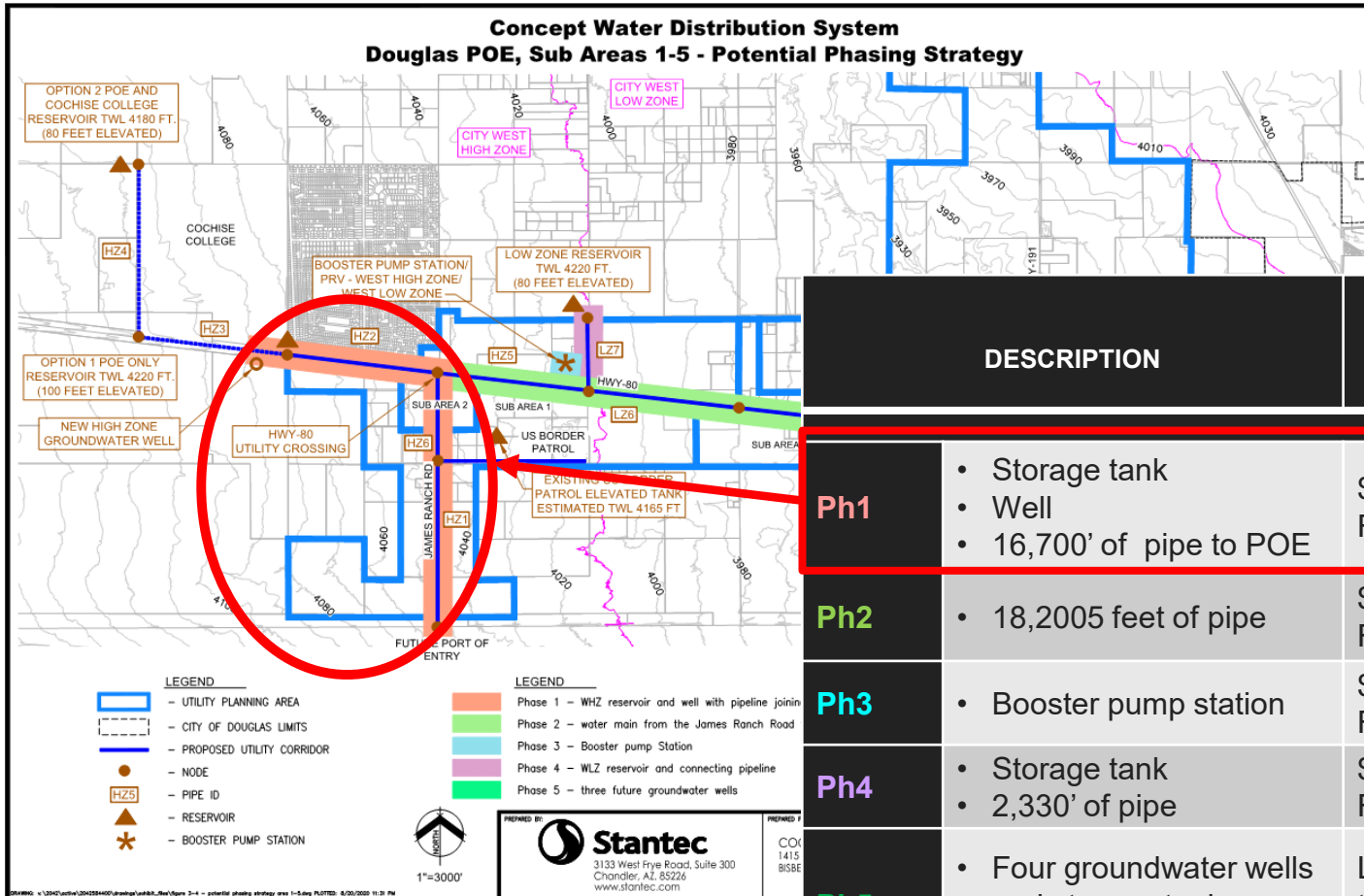


# Water System to Serve POE/West Plan Area

## Capital Cost - \$18.9 M Range \$12.2 - \$30.9M

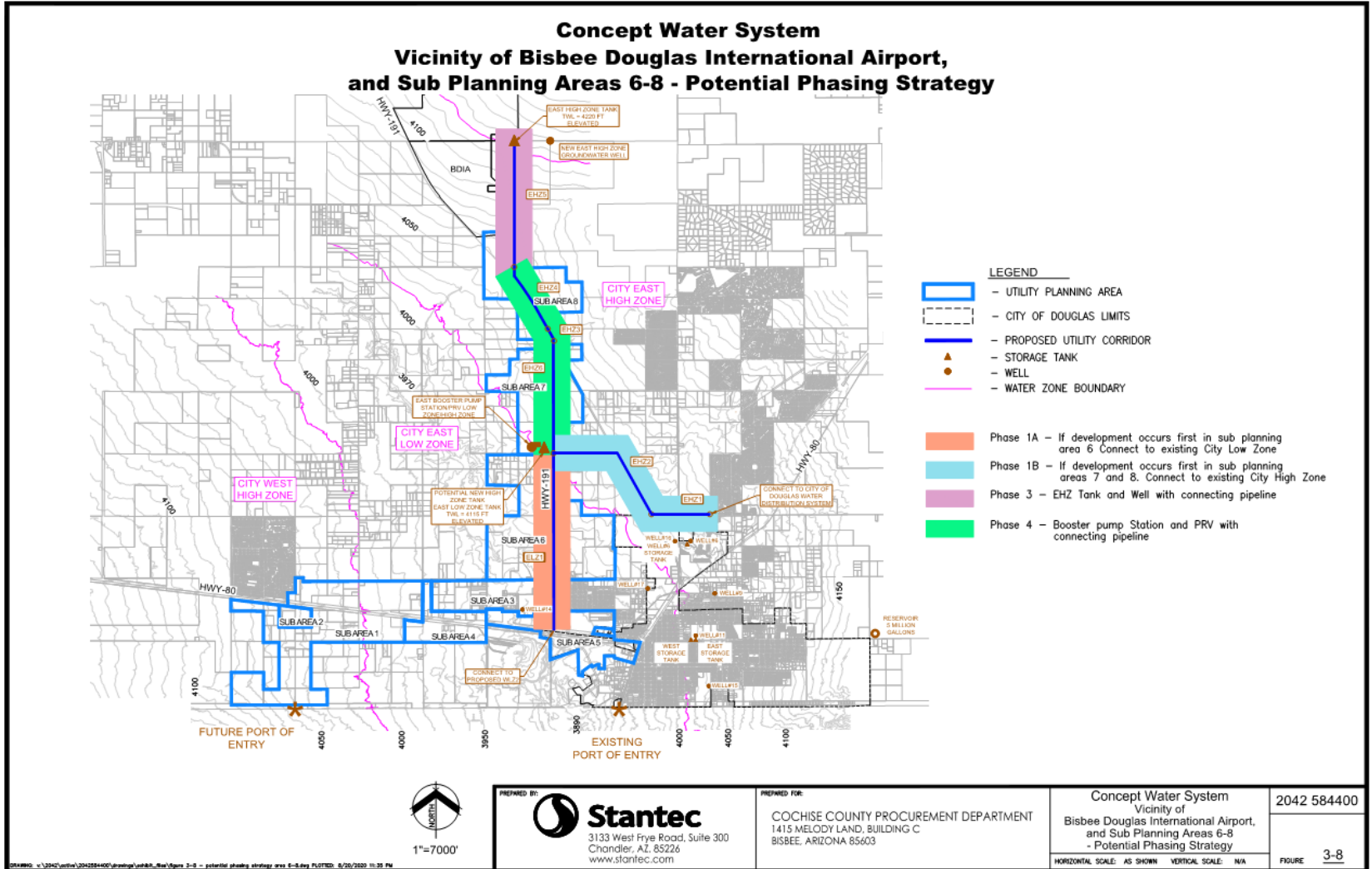


# Water Capital Cost Phase 1 POE Only – \$8.4M Range of \$5.4 - \$13M



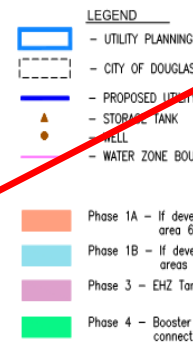
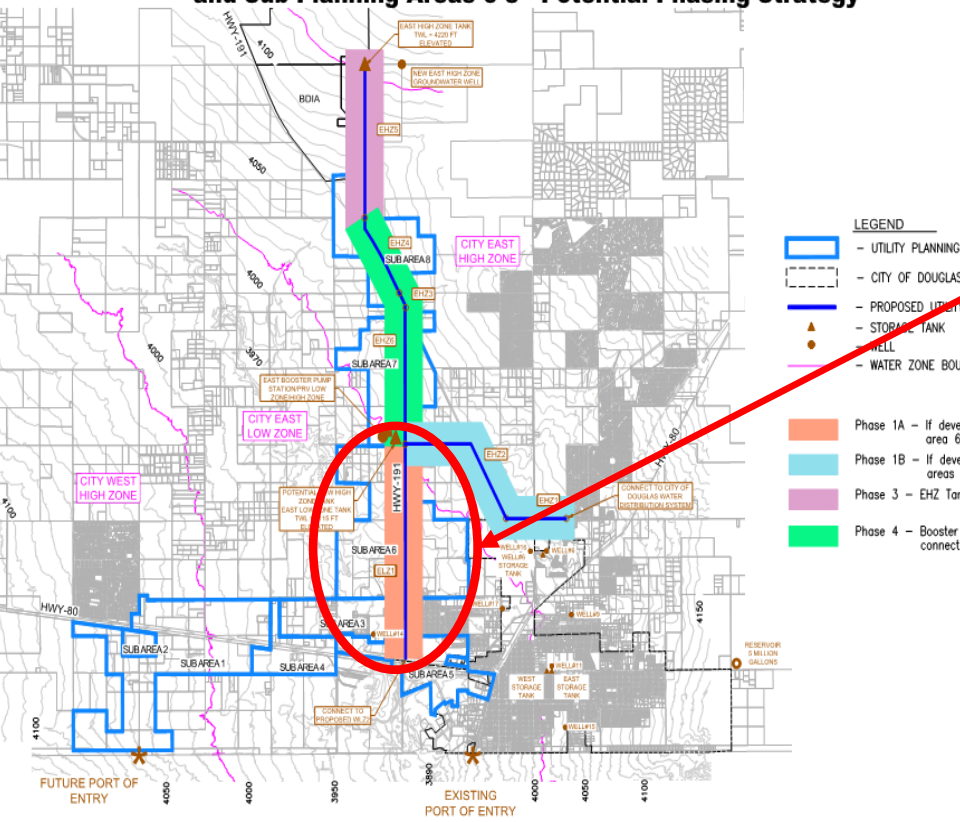
	DESCRIPTION	AEE LEVEL 5 PROBABLE COST AND RANGE OF COSTS
<b>Ph1</b>	<ul style="list-style-type: none"> <li>Storage tank</li> <li>Well</li> <li>16,700' of pipe to POE</li> </ul>	<b>\$8.4 M</b> Range: \$5.4 M - \$13.0 M
<b>Ph2</b>	<ul style="list-style-type: none"> <li>18,2005 feet of pipe</li> </ul>	<b>\$4.4 M</b> Range: \$2.9 M - \$7.4 M
<b>Ph3</b>	<ul style="list-style-type: none"> <li>Booster pump station</li> </ul>	<b>\$4.2 M</b> Range: \$2.7 M - \$7.0 M
<b>Ph4</b>	<ul style="list-style-type: none"> <li>Storage tank</li> <li>2,330' of pipe</li> </ul>	<b>\$1.6 M</b> Range: \$1.1 M - \$2.7 M
<b>Ph5</b>	<ul style="list-style-type: none"> <li>Four groundwater wells and storage tanks</li> <li>Undefined volume</li> </ul>	Likely beyond 2050. Needs to be identified with growth, not costed in this report.

# Water System Serving North Plan Area (\$24.5 M with a range of \$15.9 - \$40.4 M)



# Water Phasing and Capital Costs North Plan Area

**Concept Water System  
Vicinity of Bisbee Douglas International Airport,  
and Sub Planning Areas 6-8 - Potential Phasing Strategy**



DESCRIPTION		AAGE LEVEL 5 PROBABLE COST AND RANGE OF COSTS
<b>SERVICE TO BDIA/ADCF AREA/SUB PLANNING AREAS 6-8</b>		
<b>Ph1A</b>	<ul style="list-style-type: none"> <li>• 15,100' of watermain</li> <li>• East Low Zone reservoir</li> </ul>	\$3.8 M Range: \$2.4 - \$6.2 M
<b>Ph1B</b>	<ul style="list-style-type: none"> <li>• 33,190' of watermain</li> </ul>	\$7.9 M Range: \$5.1 - \$13.1 M
<b>Ph3</b>	<ul style="list-style-type: none"> <li>• Storage tank</li> <li>• Well</li> <li>• 10,580 ft of watermain</li> </ul>	\$4.6 M Range: \$3.0 - \$7.5 M
<b>Ph4</b>	<ul style="list-style-type: none"> <li>• Booster pump station</li> <li>• watermain</li> <li>• Pressure reducing valve</li> </ul>	\$6.9 M Range: \$4.5 - \$11.4 M
<b>Ph5</b>	<ul style="list-style-type: none"> <li>• 8 groundwater well</li> <li>• additional water storage tanks</li> </ul>	Likely beyond 2050. Needs to be identified with growth.

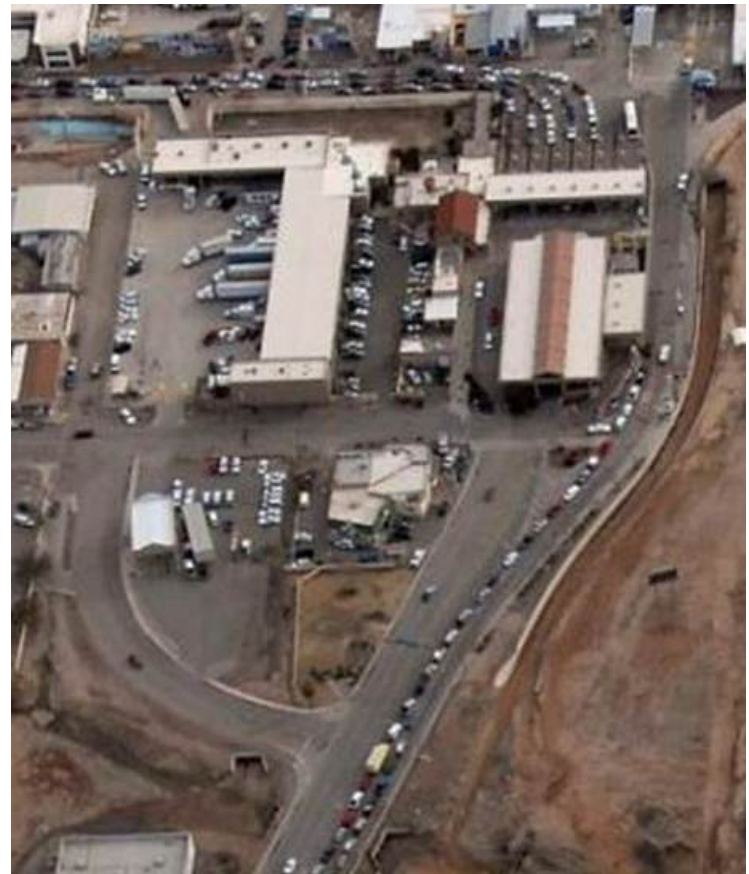
# Water Alternatives Cost-Benefit Analysis

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
	Onsite Dedicated water system to serve only POE	Community water system – <i>Serving the POE and West Plan Area (SR 80 James Ranch Road to City)</i>	Community water system – <i>Serving the POE, <u>Cochise College</u> and West Plan Area (SR 80 James Ranch Road to City)</i>	Direct Connection of POE to Water System	Community water system – <i>Serving North Plan Area (City to BDIA)</i>
<b>Added Capacity (gallons per day)</b>	<b>16,000</b>	<b>8,300,000</b>	<b>8,300,000</b>	<b>16,000</b>	<b>12,400,000</b>
<b>Projected Unit Cost (\$ per gallons per day)</b>	<b>\$27.50</b>	<b>\$0.17</b>	<b>\$0.19</b>	<b>\$59.82</b>	<b>\$0.15</b>

# Wastewater Alternatives

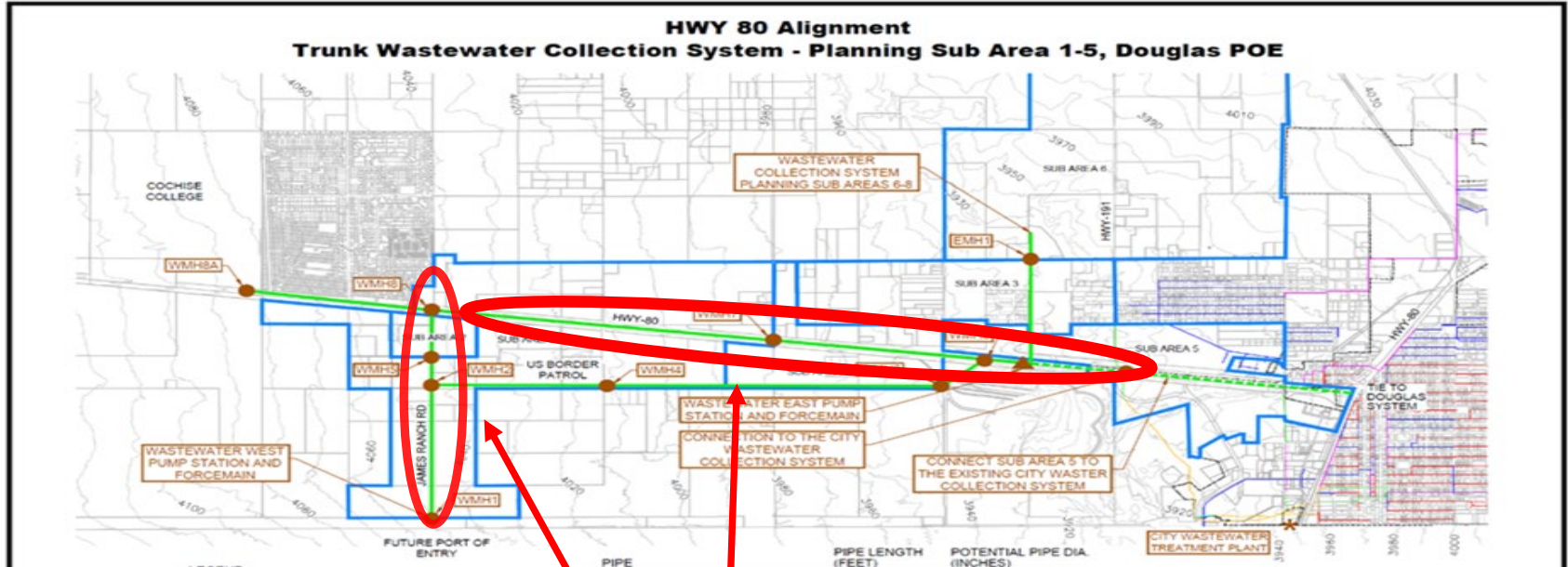
New wastewater collection systems (sewer mains/pump stations) and connection to the City WWTP with WWTP expansion likely decades in the future.

1. POE Onsite wastewater system  
(Within POE 80 Ac Site)
2. Community wastewater system-  
Serving the POE/ West Plan Area –  
SR 80 Alignment
3. Community wastewater system –  
Serving the POE/ West Plan Area -  
US/Mexico Border Alignment
4. Wastewater system – Dedicated  
Connection to WWTP
5. Community wastewater system-  
Serving North Plan Area BDIA/ADCF



# WASTEWATER PHASE 1 - WEST PLAN AREA

## \$12.7 M range of \$8.2 to \$20.9 M

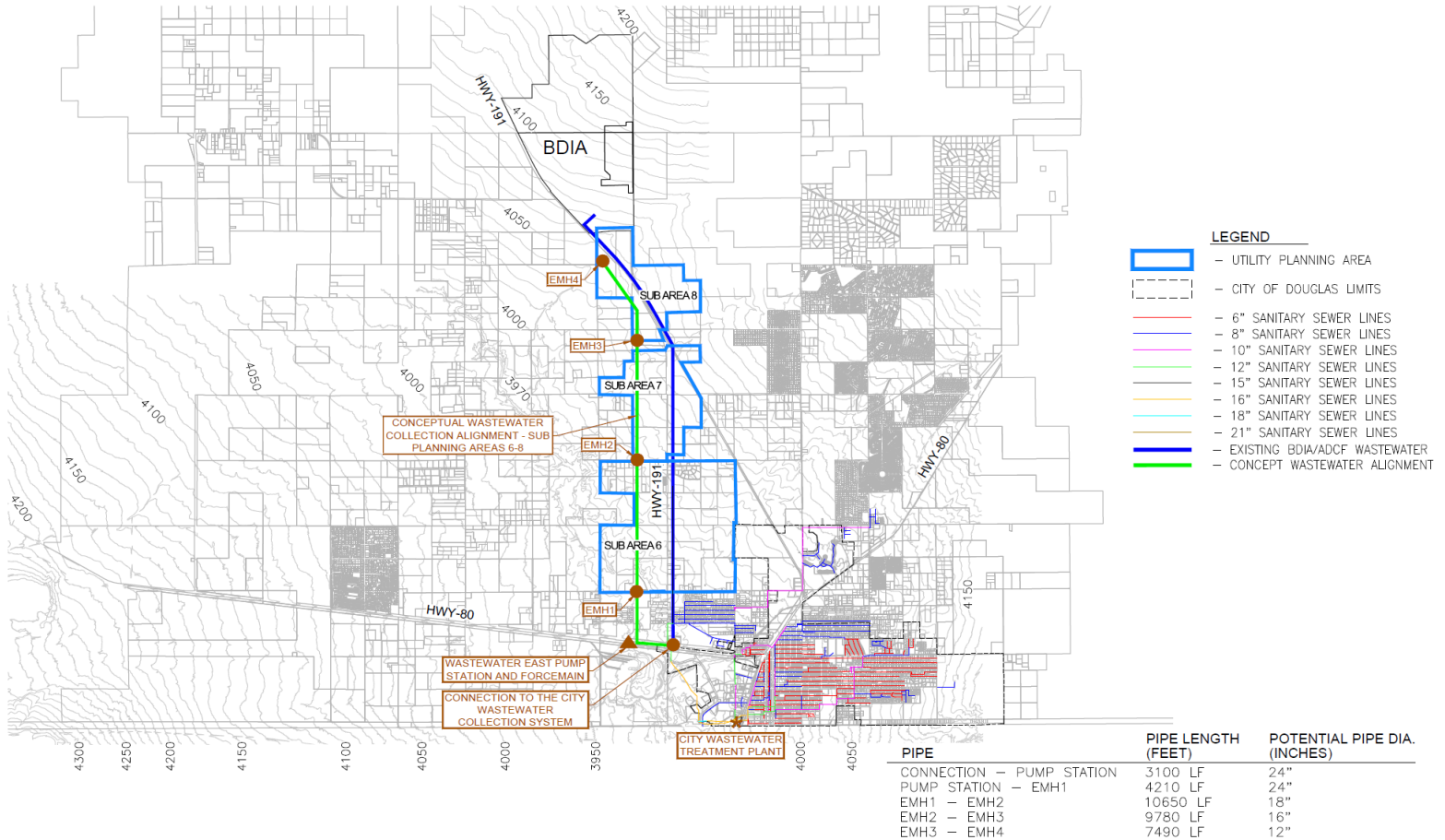


#	DESCRIPTION	AAEE LEVEL 5 PROBABLE COST (\$ MILLION)	COST RANGE (\$ MILLION)
1	POE onsite wastewater collection, treatment, and ground disposal	2.8	1.8 - 4.6
2	Dedicated POE to City of Douglas connection (no other connections except POE)	5.9	3.8 – 9.7
3	Expanded wastewater collection system to serve the POE and sub areas 1-5 along State Route 80	12.7	8.2 – 20.9
4	Expanded wastewater collection system to serve the POE and sub areas 1-5 along the USA/Mexico International Border	18.7	12.2 – 30.9
5	Expanded wastewater collection system serving potential County identified development areas 6-8 north along I-101 to PDIA/ADCF	14.3	9.1 -23.2

# WASTEWATER - NORTH PLAN AREA/BDIA

## \$14.1 M range of \$9.1 M to \$23.2 M

### SEWER ROUTE TO BISBEE - DOUGLAS INTERNATIONAL AIRPORT



PREPARED BY:

**Stantec**  
3133 West Frye Road, Suite 300  
Chandler, AZ, 85226  
www.stantec.com

PREPARED FOR:

COCHISE COUNTY PROCUREMENT DEPARTMENT  
1415 MELODY LAND, BUILDING C  
BISBEE, ARIZONA 85603

Concept Wastewater Collection  
Trunk System - Planning Sub Area 6-8

2042 584400

HORIZONTAL SCALE: AS SHOWN VERTICAL SCALE: N/A

FIGURE 29

# Wastewater Alternatives

## Cost-Benefit Analysis

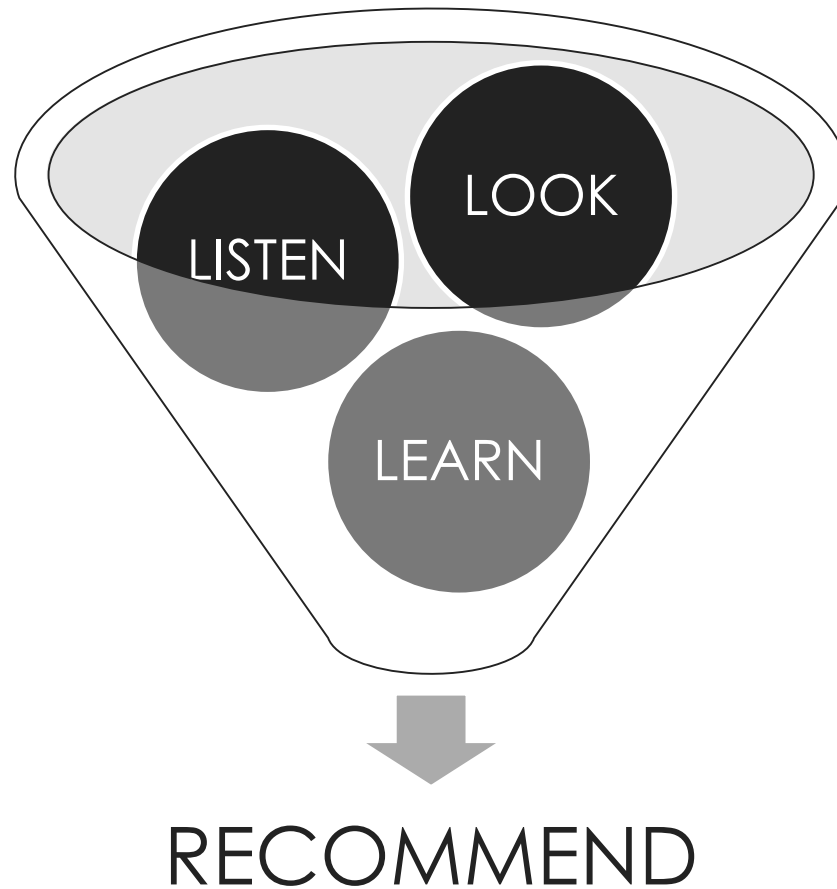
	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
	POE <u>Onsite</u> wastewater system (Within POE 80 Ac Site)	Community wastewater system – <i>Serving the POE/ West Plan Area – <u>SR 80 Alignment</u></i>	Community wastewater system – <i>Serving the POE/ West Plan Area – <u>Border Alignment</u></i>	Wastewater system – <i>Dedicated Connection to WWTP</i>	Community wastewater system – <i>Serving North Plan Area BDIA/ADCF</i>
<b>Added Capacity (gallons per day)</b>	16,000	1,910,000	1,910,000	16,000	2,650,000
<b>Projected Unit Cost (\$ per gallons per day)</b>	\$16.40	\$0.51	\$0.76	\$28.46	\$0.41

## Recommended Approach to Serve POE – Water & Wastewater Infrastructure Phase 1

<b>Phase 1</b>	<b>General Service Area</b>	<b>Estimated Capital Cost (\$)</b>	<b>Estimated Capital Cost Range (\$)</b>
<b>Drinking Water Phase 1-</b>	<b>POE + James Ranch Road</b>	<b>\$8.4 M</b>	<b>\$5.4 - 13.0M</b>
<b>Wastewater Phase 1</b>	<b>POE + West Plan Area- SR 80 James Ranch Road &amp; Connect to City collection system.</b>	<b>\$12.7 M</b>	<b>\$8.2 - 20.9 M</b>
<b>Total Water &amp; Wastewater Phase 1</b>	<b>POE + James Ranch Road + West Planning Area &amp; connection to City systems</b>	<b>\$21.1M</b>	<b>\$13.6 - 33.9M</b>

How we can fund this infrastructure

# Funding Opportunity Research Task



# Funding Opportunity Research



# Funding Opportunity Research

## Cochise County

water resource management · waste management · rural developm [Expand all](#)

[Edit project](#)

[Grant Tracker \(12\)](#)

[Matches \(42\)](#) 3 NEW

NAME	DEADLINE	AMOUNT
Water & Waste Disposal Loan & Grant Program in Arizona USDA: Rural Development (RD)	Rolling	Unspecified amount
OIA Technical Assistance Program US Department of the Interior: Office of Insular Affairs	Apr 1, 2021	Unspecified amount <span style="background-color: #f08080; padding: 2px;">NEW</span>
Rural Business Development Grants in Arizona USDA: Rural Development (RD)	<u>Apr 15, 2021</u>	US \$100,000 - US \$500,000
Community Facilities Grant Program in Arizona USDA: Rural Development (RD)	Rolling	Unspecified amount
BCBSAZ Corporate Giving Program Blue Cross Blue Shield of Arizona	Rolling	Unspecified amount
EDA Seattle FY 2016–FY 2019 Planning Program and Local Technical Assistance Program US Department of Commerce: Economic Development Administration (EDA)	Rolling	US \$40,000 - US \$300,000
A Community Thrives (ACT) Grant Program USA TODAY Network	<u>Sep 11, 2021</u>	US \$2,500 - US \$100,000
AI For Earth Innovation National Geographic Society	<u>Oct 21, 2021</u>	US \$5,000 - US \$100,000
Clean Vessel Act Grant	Rolling	Unspecified amount

### Water & Waste Disposal Loan & Grant Program in Arizona

USDA: Rural Development (RD)

[View website](#)

#### Grant details

Deadline: Rolling

Grant amount: Unspecified amount

Fields of work: Waste Management Water Resource Management Sanitation & Clean Drinking Water

Applicant type: Nonprofit, Indigenous Group, Government Entity

Funding uses: Capital Project, Project / Program

Location of project: Arizona

Location of residency: *Matches:* Arizona

#### Overview:

##### What does this program do?

This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas.

##### How may the funds be used?

Funds may be used to finance the acquisition, construction or improvement of:

- Drinking water sourcing, treatment, storage and distribution
- Sewer collection, transmission, treatment and disposal
- Solid waste collection, disposal and closure

Write a note here

[Save](#)

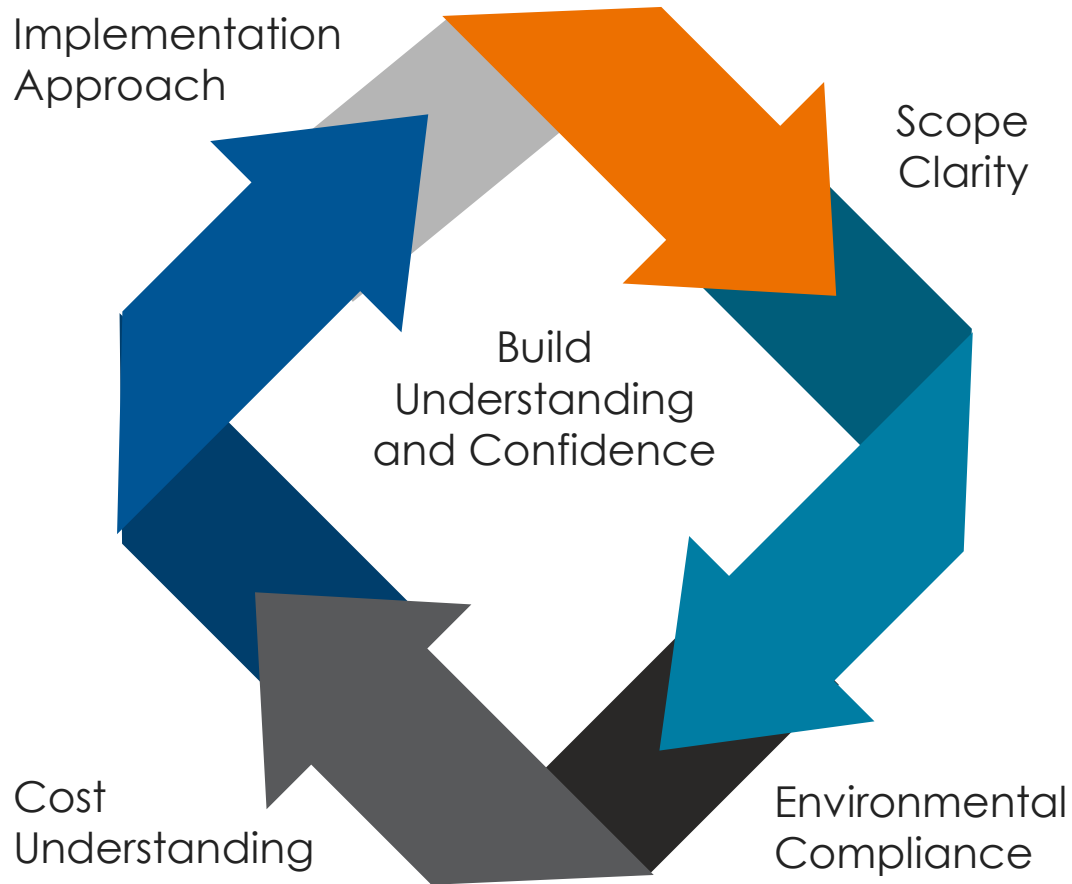
[Not Interested](#)





- \$21.1M requires multiple funding partners
- Many potential partners
- Debt capacity is limited, grants are critical
- Alternative revenue streams or capital contributions are options
- Design funding is immediate need
- Agility is essential

# Funding Partners Want



What are our next steps?



# Action Plan 2021-2025\* – Service to POE

- Identify and Engage Utility Stakeholders.
- Due Diligence & Land Planning in Support of POE
- Water/Wastewater Utility Development
- Identify and Engage in Funding Pursuits
- Consensus on Prioritized Infrastructure
  - James Ranch Road, Phase 1 Water/Wastewater,*
- Water/Wastewater/Roadway Funding, Design, Permitting, Construction

\* For purposes of this report the water and wastewater infrastructure to POE will be in place by 2025.

\* The report schedule is based on the assumed dates but will need to be aligned with GSA's schedule.



## Priority Items for 2021-2022

**Assume water and wastewater systems serving the POE must be in operation by 2025.**

1. Assign leadership and responsibility
2. Coordinate with GSA
3. Determine additional resources needed for funding applications
4. Develop a detailed action plan
5. Land planning - annexation, easements, and/or right of way acquisition
6. Understand state agencies expectations and contributions
7. Designate, advocate, and pursue funding

# General Approach to Successful LPOE Projects

## 1. **Build Consensus on Need (competing against CA, NM, TX):**

- #1 Customs and Border Protection (local port, field office, DC)
- #2 Bi-national Support (local, state, fed)

## 2. **Process:**

- Feasibility Study
- Prospectus Development Study (for cost estimating)
- Environmental Clearances
- Presidential Permit Approval
- Prospectus – Congressional Funding
- Design / Construction

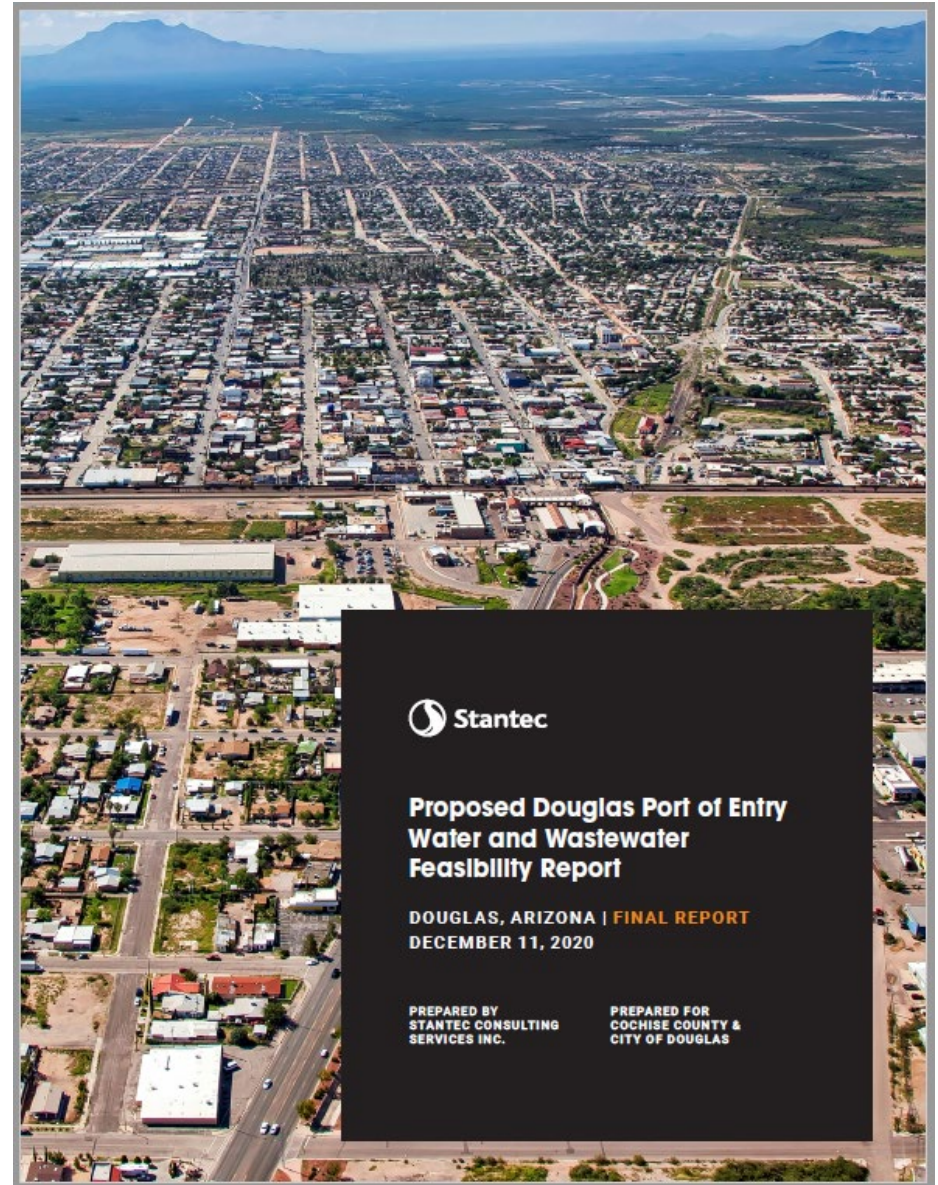
## 3. **Inter-Governmental Agency (IGA) Coordination / Commitments**

- Roadwork (ADOT, Cochise County, City of Douglas)
- Utilities (wet / dry)



# Report Benefits

- Direction for next steps
- Cost-benefit analyses
- Water/wastewater design alternatives
- Funding opportunities



COMMENTS  
& QUESTIONS

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**Jack Bryck PE, BCEE**  
[Jack.bryck@stantec.com](mailto:Jack.bryck@stantec.com)