

WELCOME
TO THE FIRST
NEW DEVELOPMENT
OPEN HOUSE

HOSTED BY THE DEPARTMENT OF UTILITY SERVICES'
INFRASTRUCTURE PLANNING SECTION

The background is a light blue gradient with several realistic water droplets of various sizes scattered in the corners. The main title is centered in a large, bold, black font.

INTRODUCTIONS & ORGANIZATIONAL STRUCTURE

PRISCILLA HOWELL

DIRECTOR OF UTILITY SERVICES

KEY UTILITY STATISTICS

- SERVICES/FUNCTIONS: POTABLE WATER, WASTEWATER, RECLAIMED WATER, RAW WATER, STORM WATER (IN PARTNERSHIP WITH PUBLIC WORKS)
- PROPOSED FY2020 BUDGET
 - \$121M O&M AND CAPITAL EQUIPMENT BUDGET
 - \$69M CAPITAL BUDGET
- \$2.1B (REPLACEMENT VALUE) OF INFRASTRUCTURE OPERATING 24/7 THROUGHOUT THE CITY
- ENTERPRISE FUND – RECEIVE NO PROPERTY TAX OR OTHER CONTRIBUTIONS FROM GENERAL FUND
- MULTIPLE FEDERAL AND STATE PERMITS
- ~300 FTE

KEY UTILITY STATISTICS - WATER

15 MGD POTABLE WATER TREATMENT PLANT

1,200 MILES MAINS

46 RESERVOIRS

29 PUMPSTATIONS

>11,000 HYDRANTS

RECLAIMED WATER SYSTEM

7 RESERVOIRS

8 PUMPSTATIONS



KEY UTILITY STATISTICS - WASTEWATER

TWO TREATMENT FACILITIES

- ~1,000 MILES OF SEWER MAINS
- >26,000 MANHOLES
- 14 LIFT-STATIONS

Kurt R. Segler Water Reclamation Facility (WRF) – 32 MGD



Southwest Water Reclamation Facility (SWRF) – 8 MGD



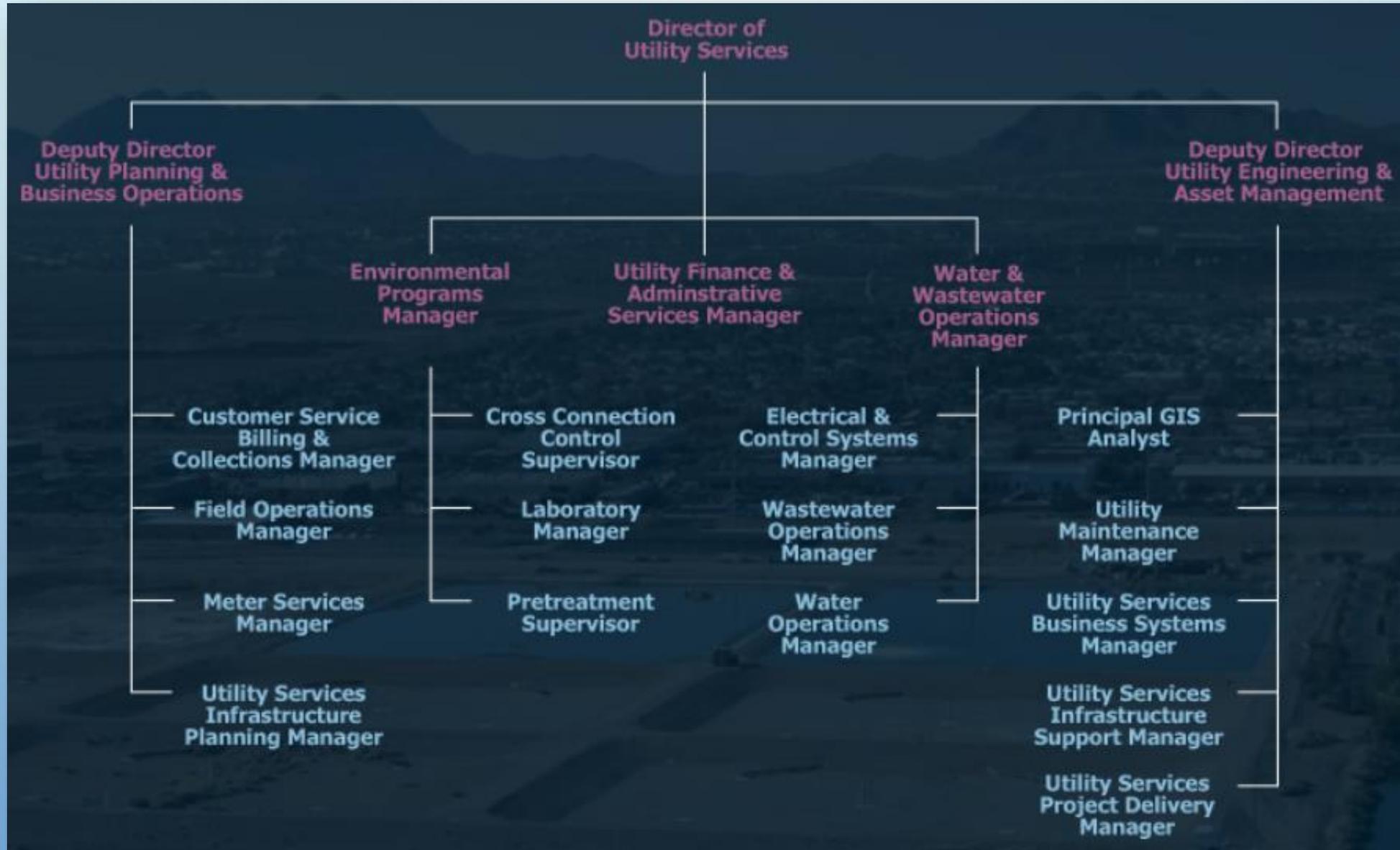
UTILITY SERVICES MISSION

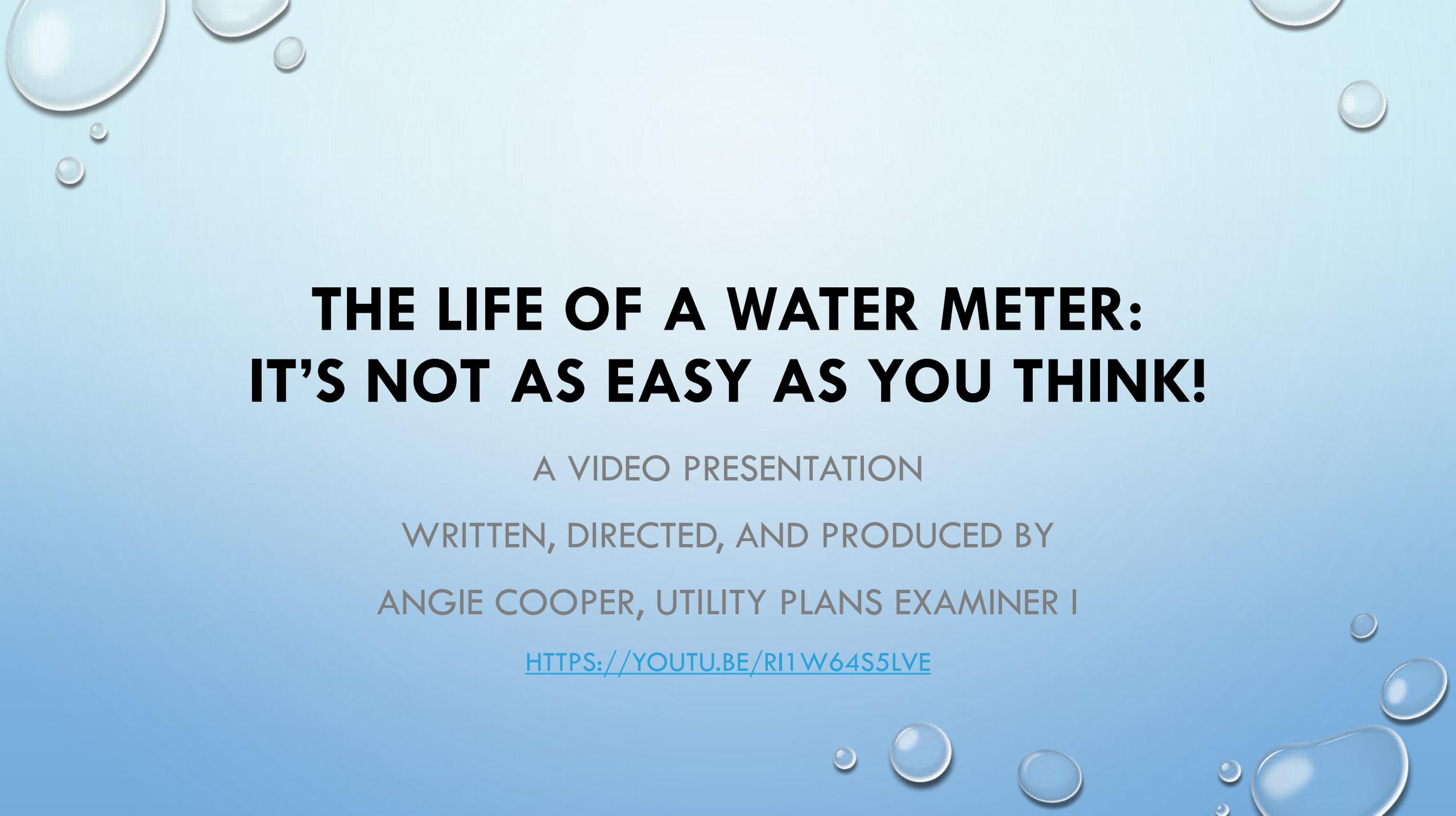


3 – 5 YEAR STRATEGIC PRIORITIES

- INTEGRATE ASSET MANAGEMENT PHILOSOPHY THROUGHOUT THE ORGANIZATION
- STRENGTHEN THE ORGANIZATION THROUGH TECHNOLOGY
- REDUCE OVERALL GALLONS PER CAPITA PER DAY (GPCD) ACROSS THE CITY
- DEVELOP AND IMPLEMENT A COMPREHENSIVE WORKFORCE DEVELOPMENT PROGRAM
- MAINTAIN SERVICE LEVELS WHILE SUSTAINING AFFORDABLE RATES
- INCREASE SECURITY AND EMERGENCY PREPAREDNESS

UTILITY SERVICES ORGANIZATION



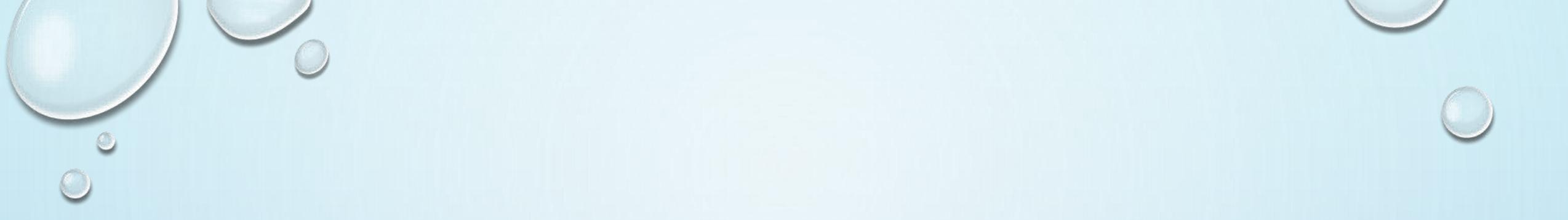
The background is a light blue gradient with several realistic water droplets of various sizes scattered in the corners. The main text is centered in a bold, black, sans-serif font.

THE LIFE OF A WATER METER: IT'S NOT AS EASY AS YOU THINK!

A VIDEO PRESENTATION

WRITTEN, DIRECTED, AND PRODUCED BY
ANGIE COOPER, UTILITY PLANS EXAMINER I

[HTTPS://YOUTU.BE/R11W64S5LVE](https://youtu.be/R11W64S5LVE)



SPECIAL & STANDARD REFUNDING

KYLE OKAMURA, P.E.

DEPUTY DIRECTOR OF UTILITY SERVICES – UTILITY PLANNING & BUSINESS
OPERATIONS



SPECIAL REFUNDING

HMC CHAPTER 14.16 – REFUNDING REGULATIONS

SPECIAL REFUNDING (HMC 14.16.050):

“The cost to design and construct any water, sewer and/or reclaimed infrastructure required in connection with the extension of the public utility system to serve the customer, shall be advanced by the customer requesting such service.” (HMC 14.16.020)

“The City may enter into a special refunding agreement which provides for repayment of a portion of the cost of that backbone infrastructure, lying between the original point of supply and the customer’s property ...” (HMC 14.16.050, paragraph A.1)

- *Water Backbone Infrastructure* defined as, “infrastructure such as pump stations, reservoirs and all connecting pipelines, or as determined by the Director, used to transmit and distribute water to users or other facilities.”
- *Wastewater Backbone Infrastructure* defined as, “infrastructure such as lift stations and all connecting pipelines, generally 15 inches or larger in diameter, or as otherwise determined by the Director, used to collect and transport wastewater from users or other facilities.”

HMC CHAPTER 14.16 – REFUNDING REGULATIONS

SPECIAL REFUNDING (HMC 14.16.050):

1. Applications for special refunding agreements shall be submitted in writing within 90 days of the acceptance of the pre-design report.
2. Special refunding agreements must be based on a refunding report adopted by the City Council.
 - Identify backbone infrastructure and total backbone infrastructure capacity
 - Define special refunding boundaries based upon benefit area
 - Estimated total project cost and projected total EDUs/ERUs = \$/EDU or \$/ERU charge
 - HMC 14.16.050, paragraph A.5 identifies eligible costs to include in the special refunding
3. Term of special refunding agreements shall be 20 years, commencing on the date the infrastructure is accepted by the city.
4. Final costs, as well as any adjustments to projected EDUs/ERUs, shall be incorporated into a final refunding report adopted by the City Council.
 - Audit of final costs (City responsibility)

HMC CHAPTER 14.16 – REFUNDING REGULATIONS

SR-011 PARDEE HOMES HORIZON RIDGE/GIBSON SPECIAL REFUNDING

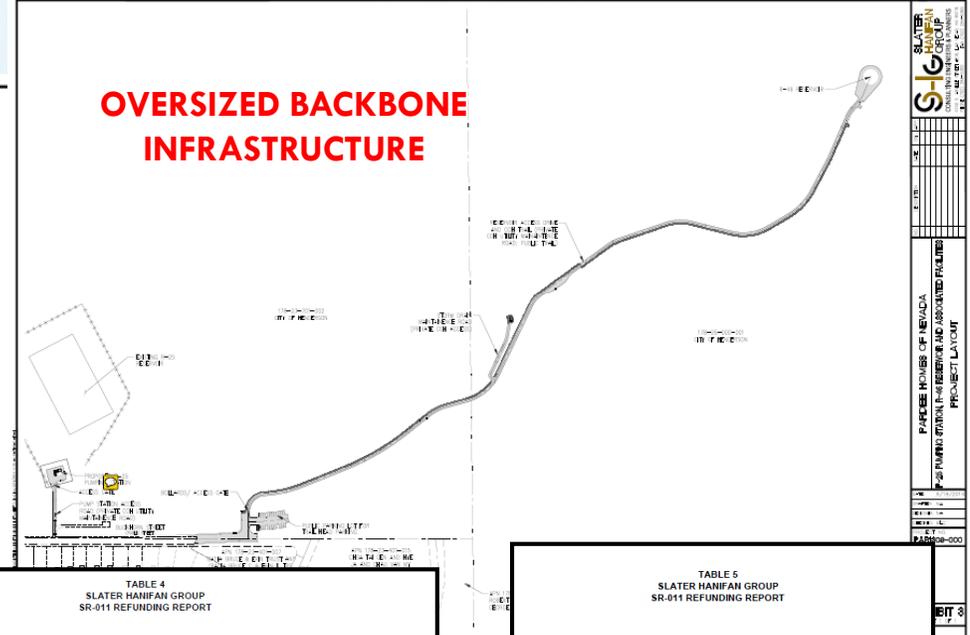
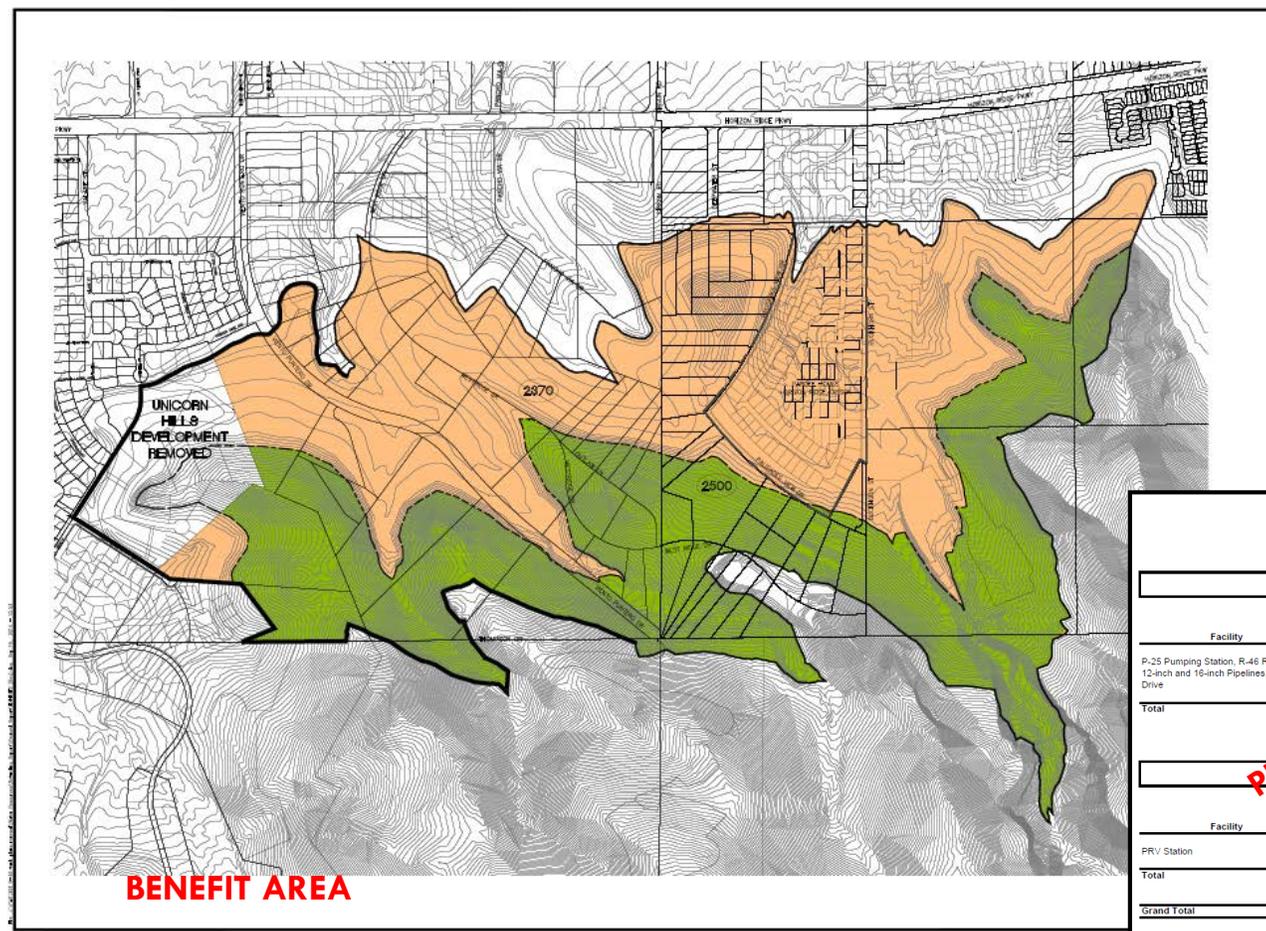


TABLE 4
 SLATER HANIFAN GROUP
 SR-011 REFUNDING REPORT

ESTIMATED COST SHARE BASED ON PERCENT USAGE
 2370/2500 PRESSURE ZONES

Facility	Total Cost	Pardee Homes [1]		Others	
		Prorata Share %	Prorata Share \$	Prorata Share %	Prorata Share \$
P-25 Pumping Station, R-46 Reservoir, 12-inch and 16-inch Pipelines, Access Drive	\$8,210,441	15%	\$1,231,566	85%	\$6,978,875
Total	\$8,210,441		\$1,231,566		\$6,978,875

ESTIMATED COST SHARE BASED ON PERCENT USAGE
 2500 PRESSURE ZONE ONLY

Facility	Total Cost	Pardee Homes [1]		Others	
		Prorata Share %	Prorata Share \$	Prorata Share %	Prorata Share \$
PRV Station	\$358,728	21%	\$75,333	79%	\$283,395
Total	\$358,728		\$75,333		\$283,395
Grand Total	\$8,569,169		\$1,306,899		\$7,262,270

[1] Includes prorata share of Pelican Development Corporation

TABLE 5
 SLATER HANIFAN GROUP
 SR-011 REFUNDING REPORT

COST PER EDU SUMMARY
 2370/2500 PRESSURE ZONES
 P-25 PUMPING STATION, R-46 RESERVOIR, PIPELINES AND ACCESS DRIVE

Development	Total EDUs	Total Cost	Cost per EDU
Pardee Homes	123.0		
Others	699.0		
Total	822.0	\$8,210,441	\$9,988

COST PER EDU SUMMARY
 2370 PRESSURE ZONE ONLY
 PRV STATION

Development	Total EDUs	Total Cost	Cost per EDU
Pardee Homes	123.0		
Others	467.5		
Total	590.5	\$358,728	\$607

CHARGE TO 2370 ZONE: \$9,988 + \$607 = \$10,595
 CHARGE TO 2500 ZONE: = \$9,988

PROPORTIONAL COST BREAKDOWN

\$/EDU PER PZ

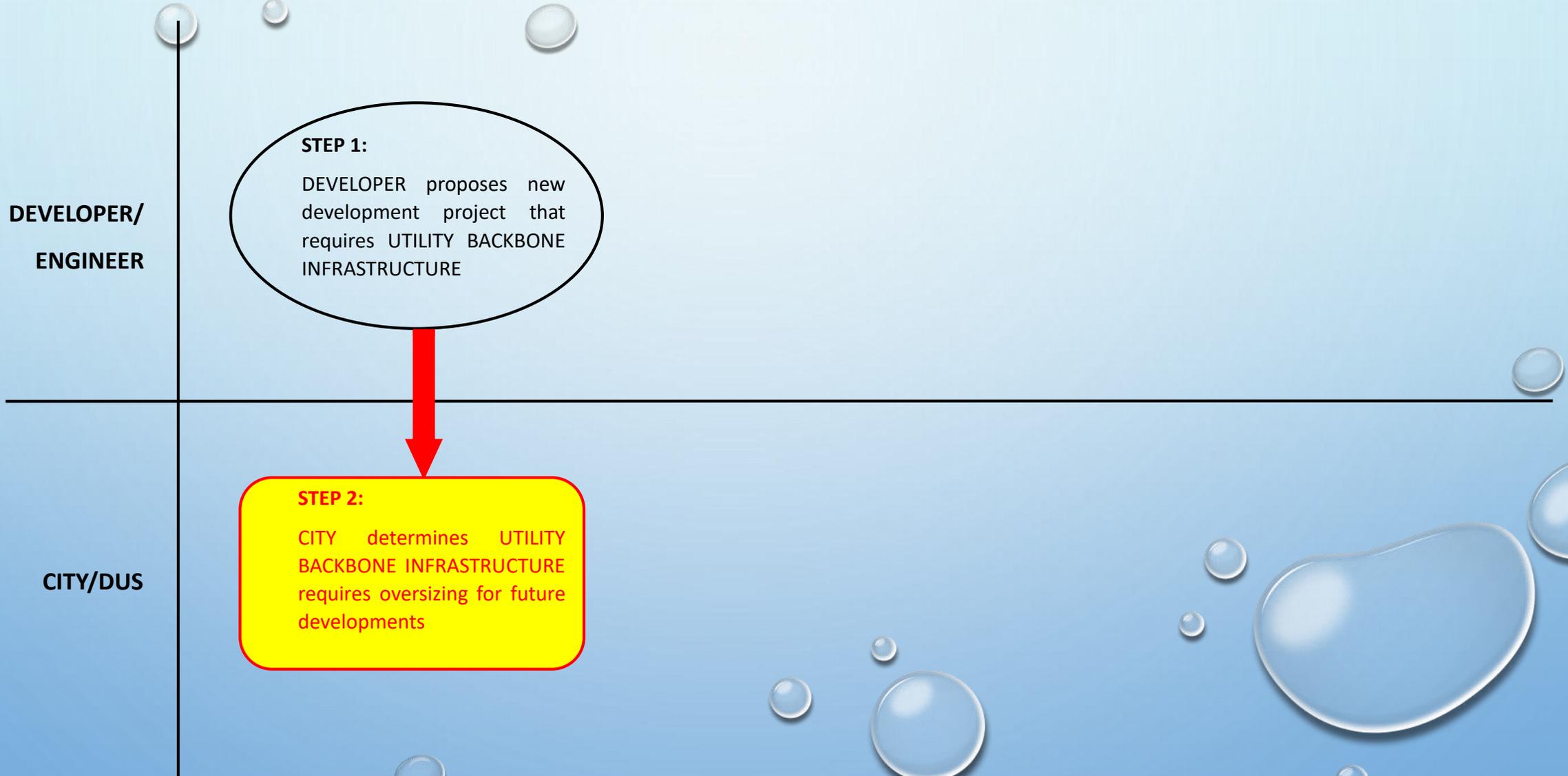
HMC CHAPTER 14.16 – REFUNDING REGULATIONS

**DEVELOPER/
ENGINEER**

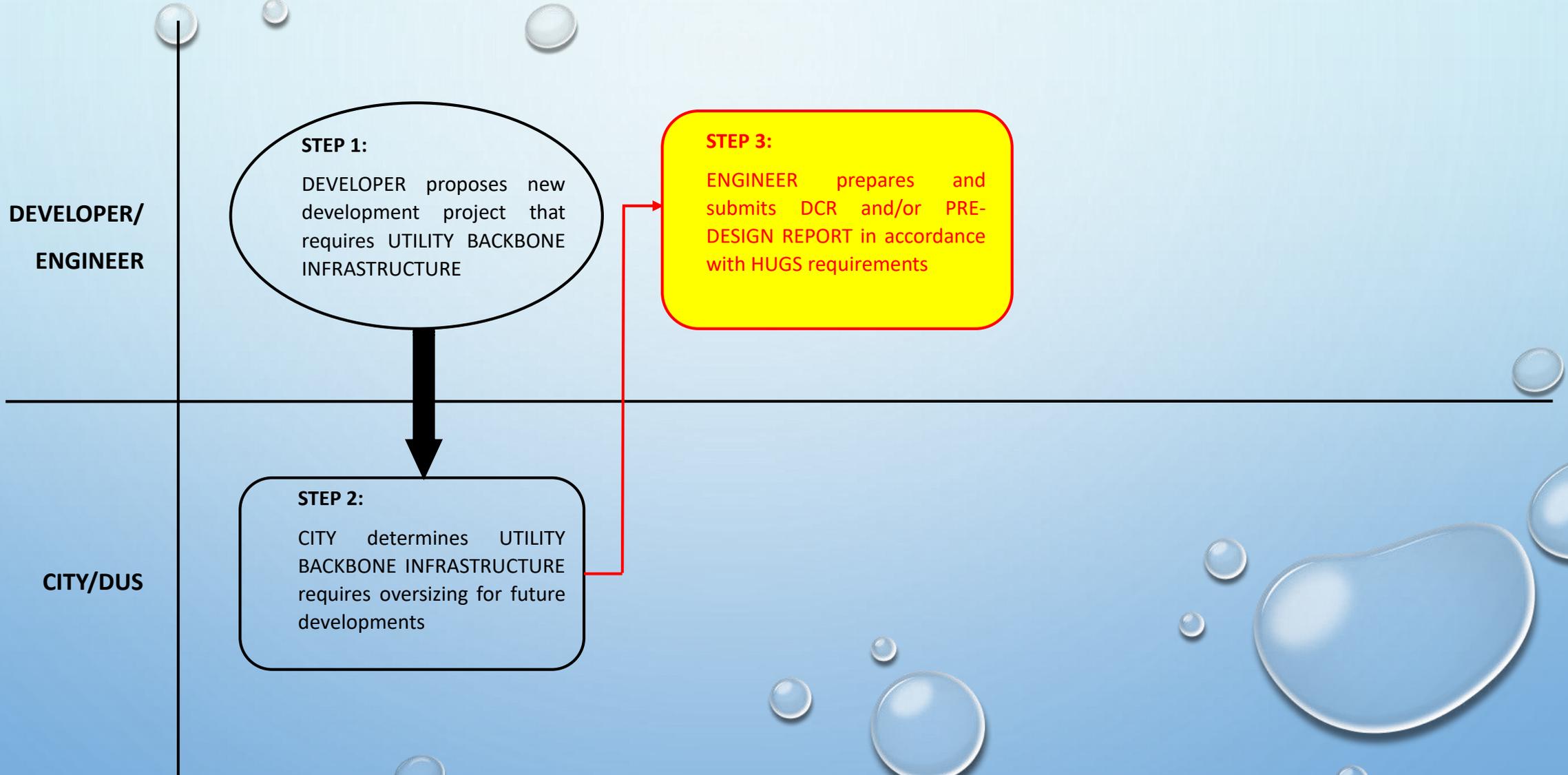
STEP 1:
DEVELOPER proposes new development project that requires UTILITY BACKBONE INFRASTRUCTURE

CITY/DUS

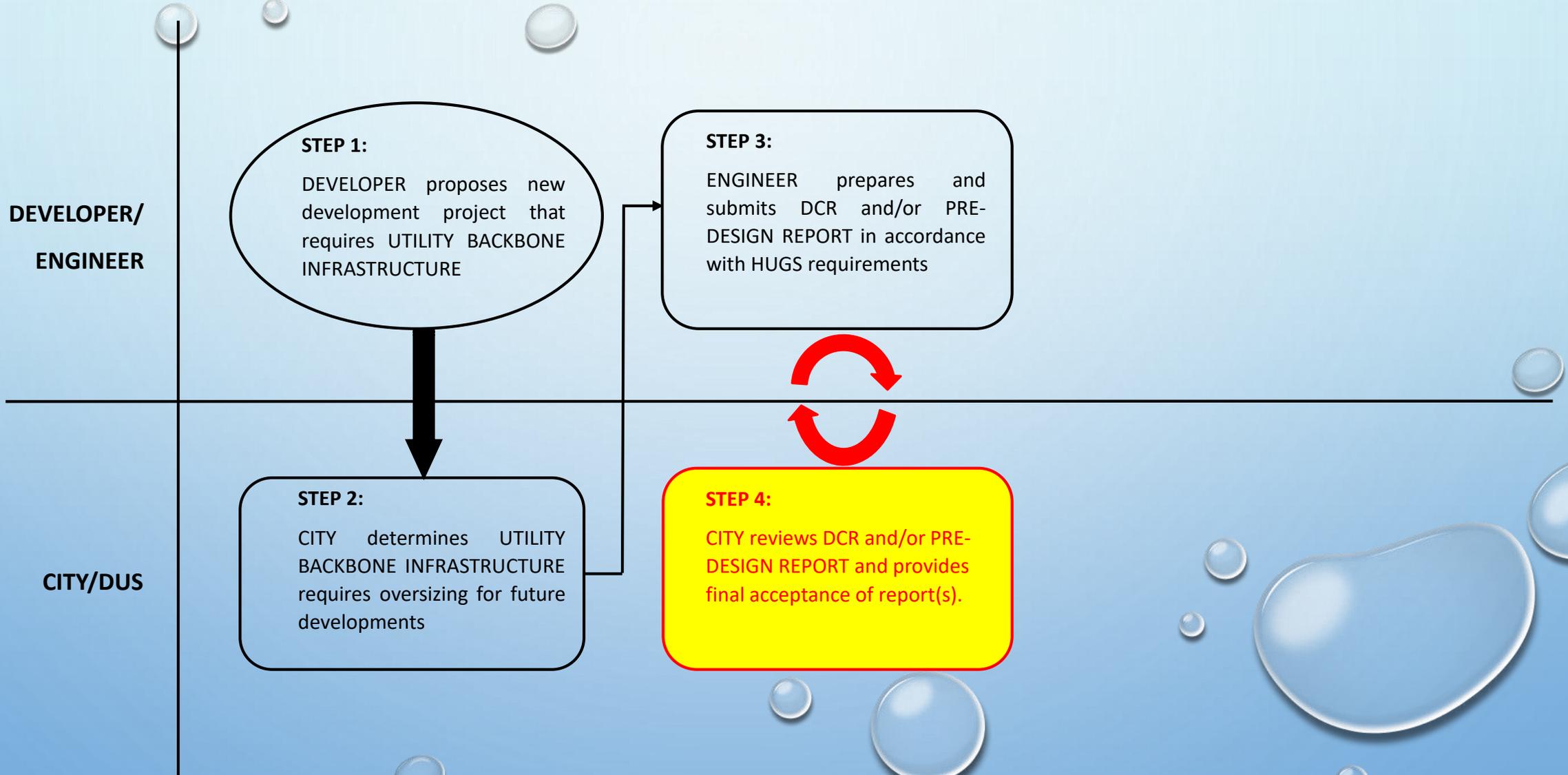
HMC CHAPTER 14.16 – REFUNDING REGULATIONS



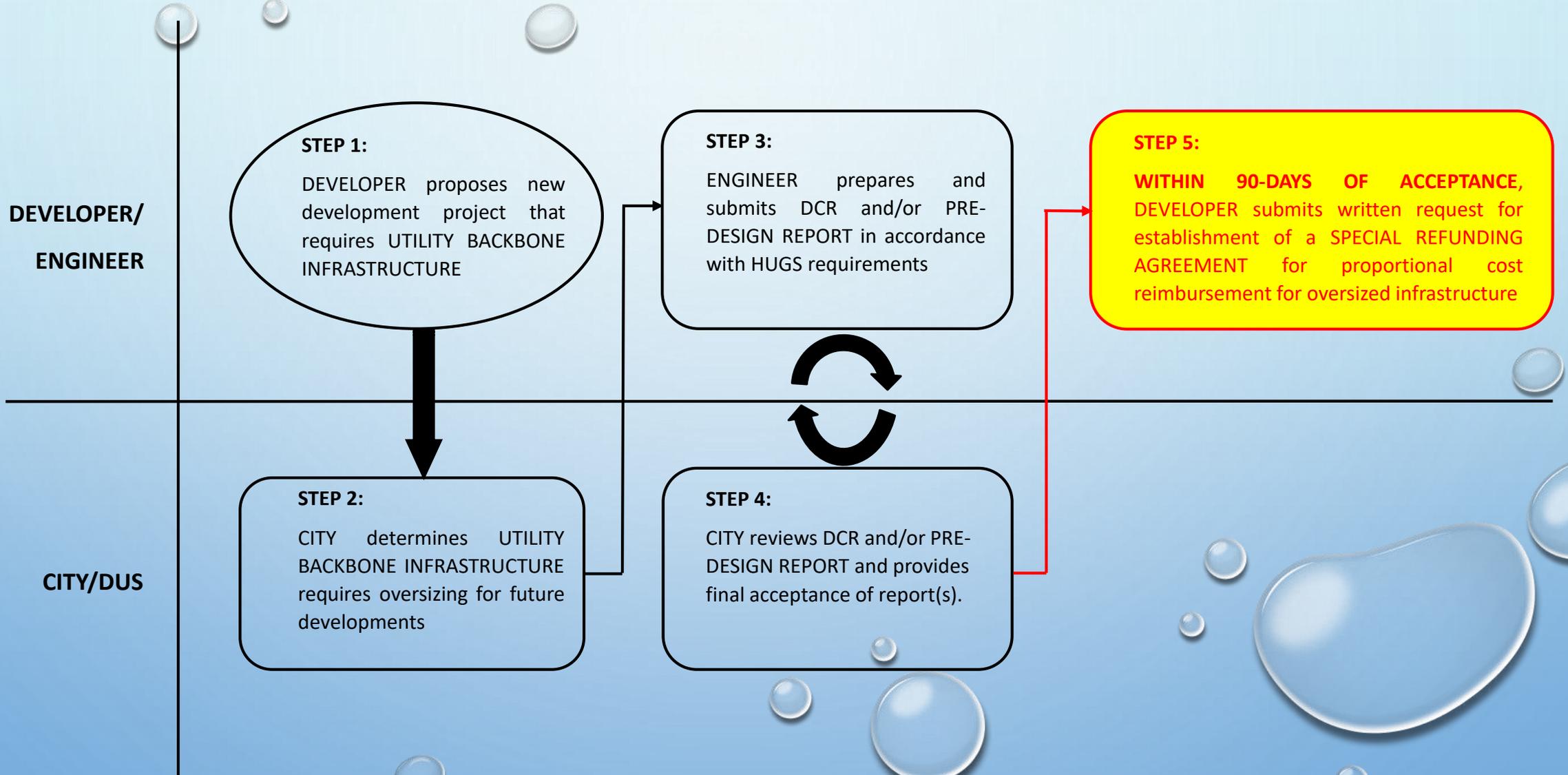
HMC CHAPTER 14.16 – REFUNDING REGULATIONS



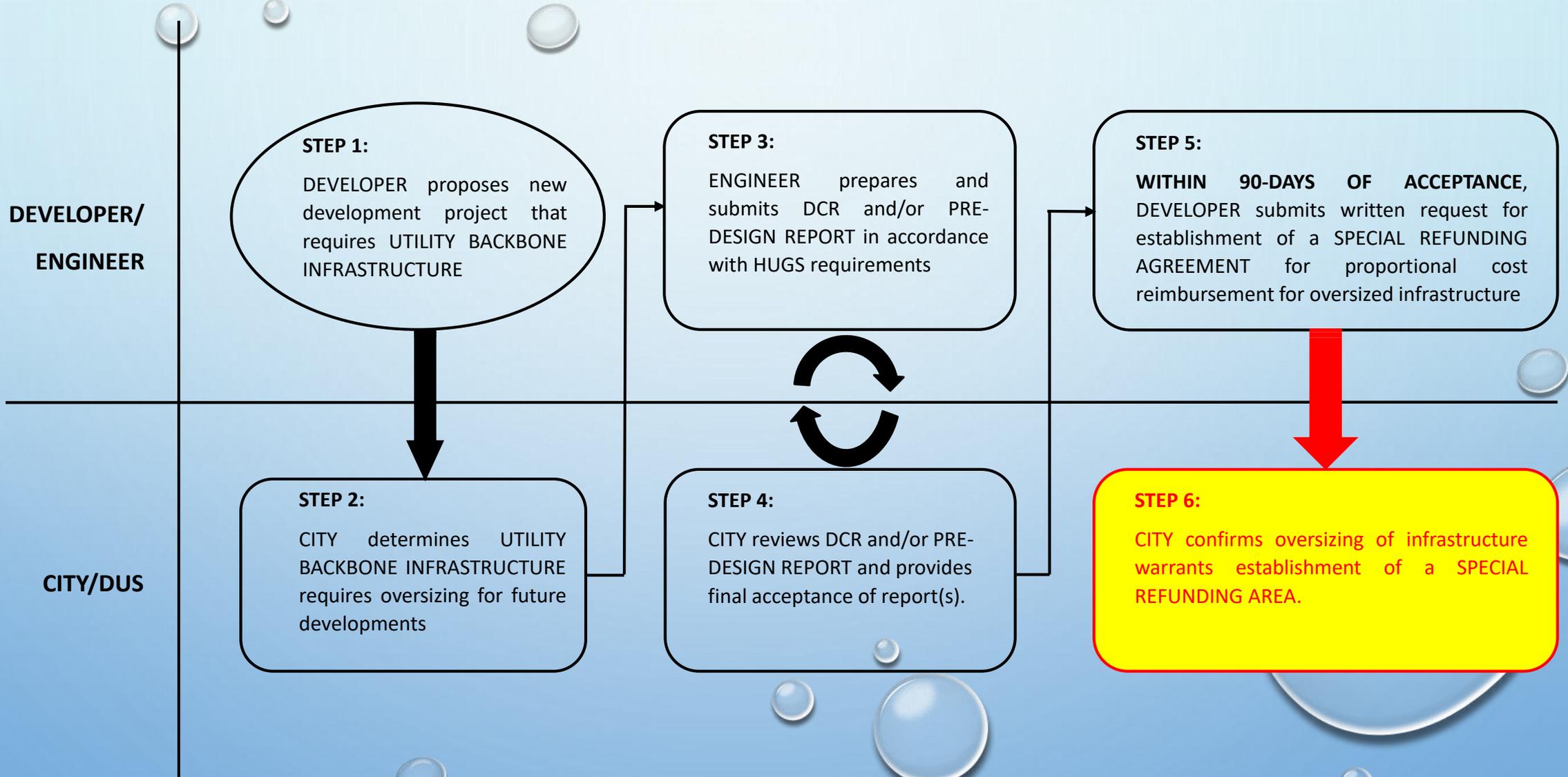
HMC CHAPTER 14.16 – REFUNDING REGULATIONS



HMC CHAPTER 14.16 – REFUNDING REGULATIONS



HMC CHAPTER 14.16 – REFUNDING REGULATIONS



HMC CHAPTER 14.16 – REFUNDING REGULATIONS

DEVELOPER/
ENGINEER

STEP 7:

ENGINEER prepares and submits
PRELIMINARY REFUNDING
REPORT to DUS for
review/acceptance

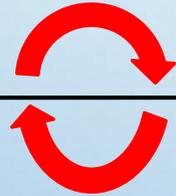
CITY/DUS

HMC CHAPTER 14.16 – REFUNDING REGULATIONS

DEVELOPER/
ENGINEER

STEP 7:

ENGINEER prepares and submits
PRELIMINARY REFUNDING
REPORT to DUS for
review/acceptance



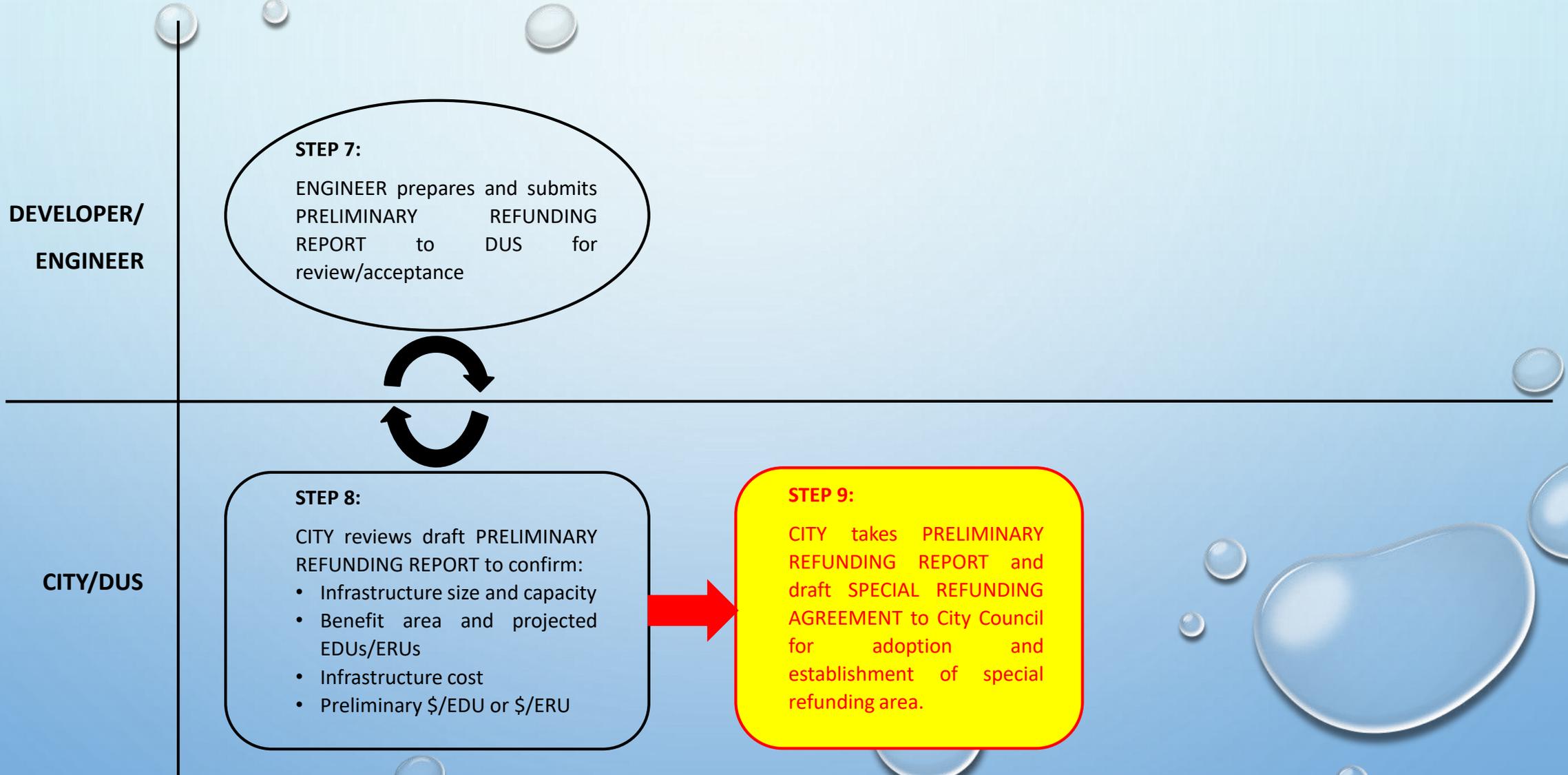
CITY/DUS

STEP 8:

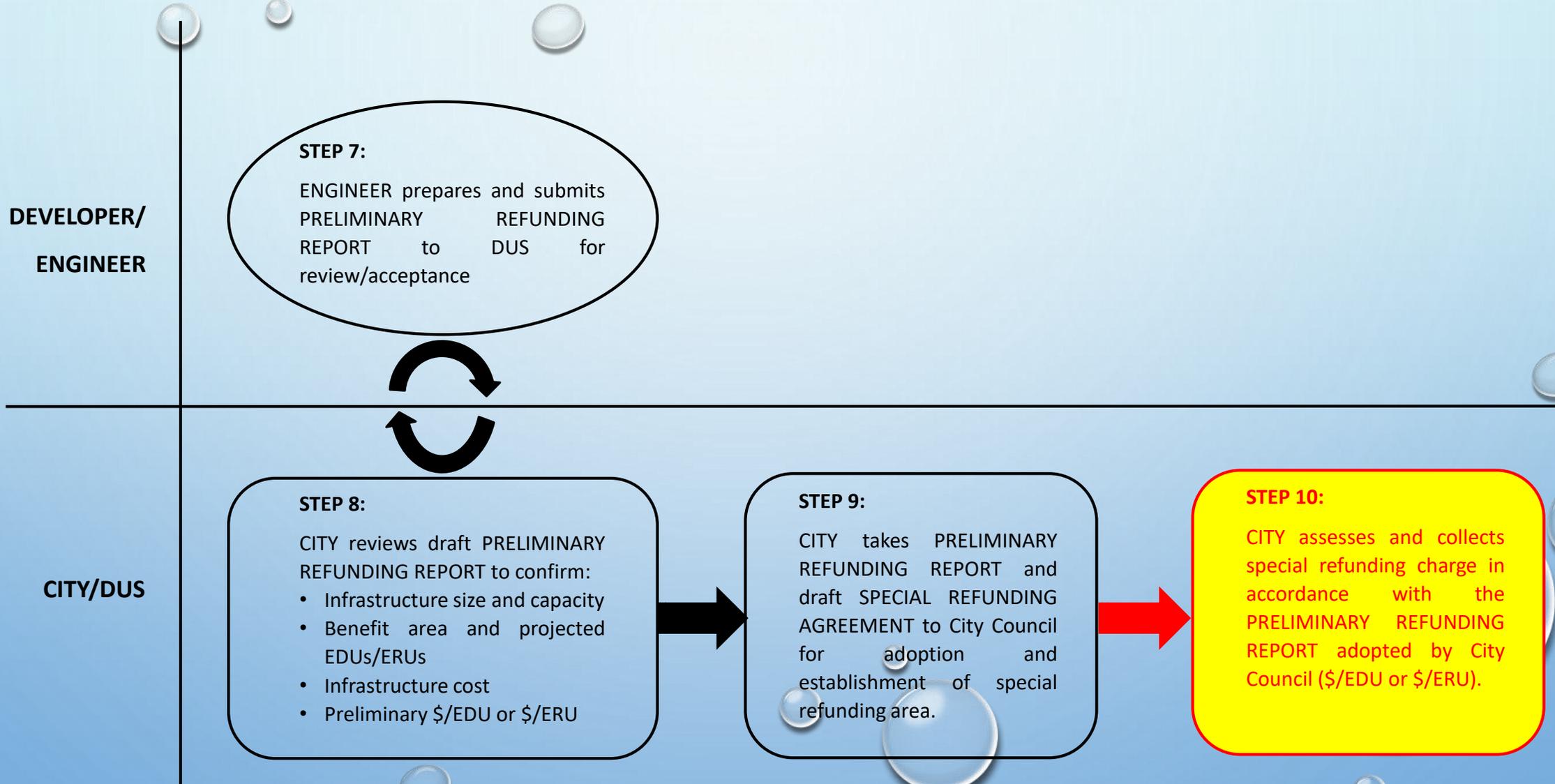
CITY reviews draft PRELIMINARY
REFUNDING REPORT to confirm:

- Infrastructure size and capacity
- Benefit area and projected EDUs/ERUs
- Infrastructure cost
- Preliminary \$/EDU or \$/ERU

HMC CHAPTER 14.16 – REFUNDING REGULATIONS



HMC CHAPTER 14.16 – REFUNDING REGULATIONS



HMC CHAPTER 14.16 – REFUNDING REGULATIONS

DEVELOPER/
ENGINEER

STEP 5 :

ENGINEER prepares and submits CIVIL IMPROVEMENT PLANS to City DSC for City review and approval

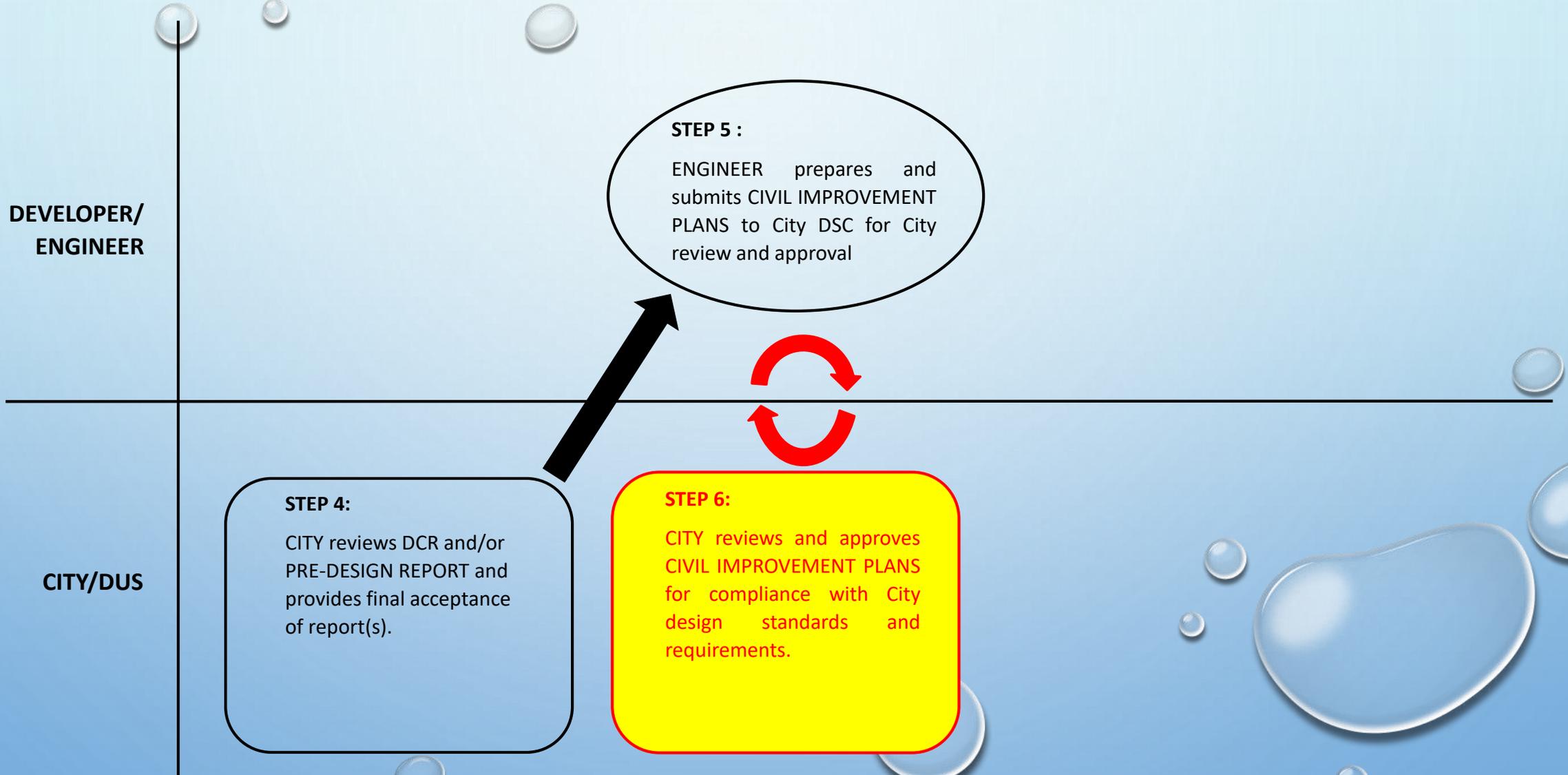
CITY/DUS

STEP 4:

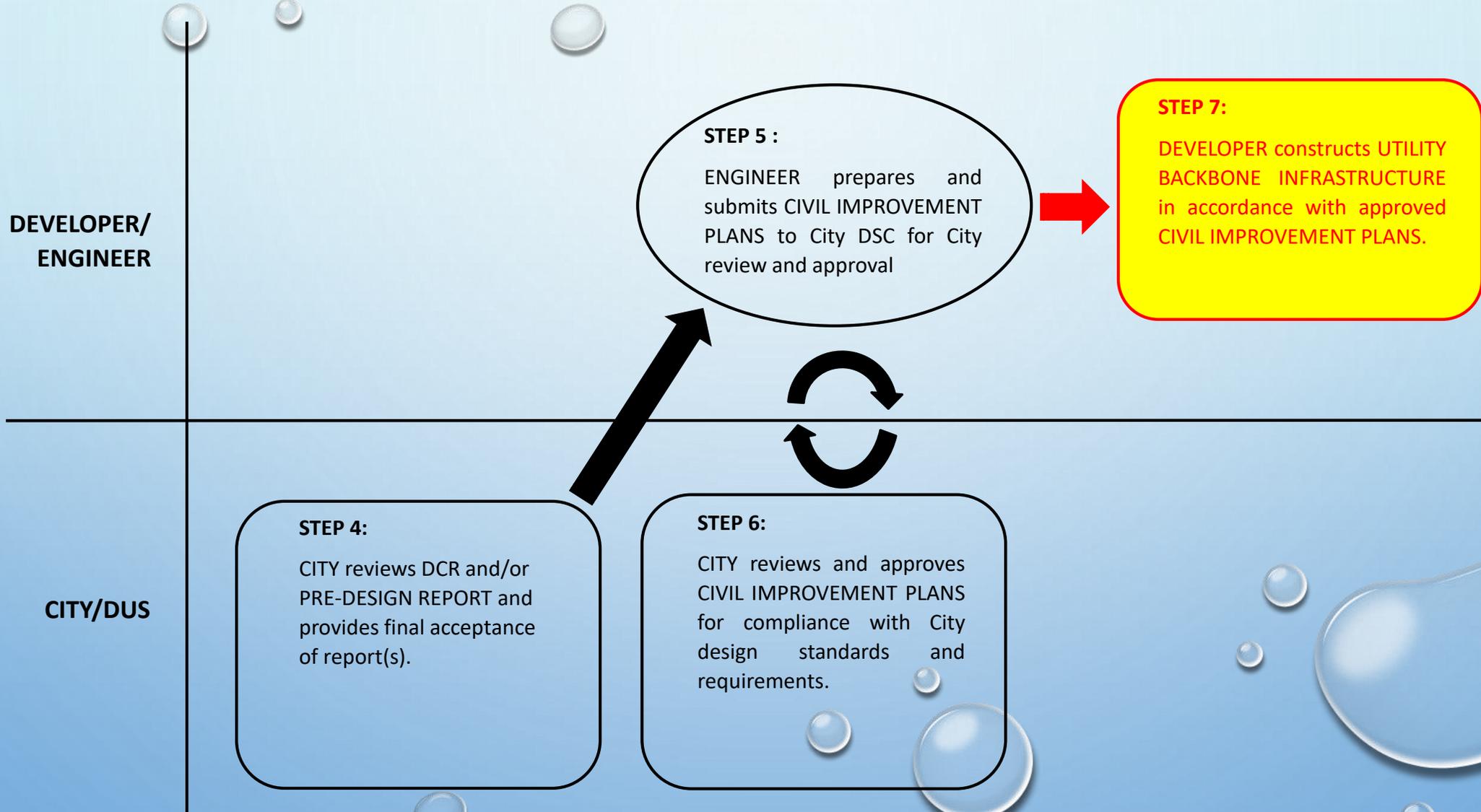
CITY reviews DCR and/or PRE-DESIGN REPORT and provides final acceptance of report(s).



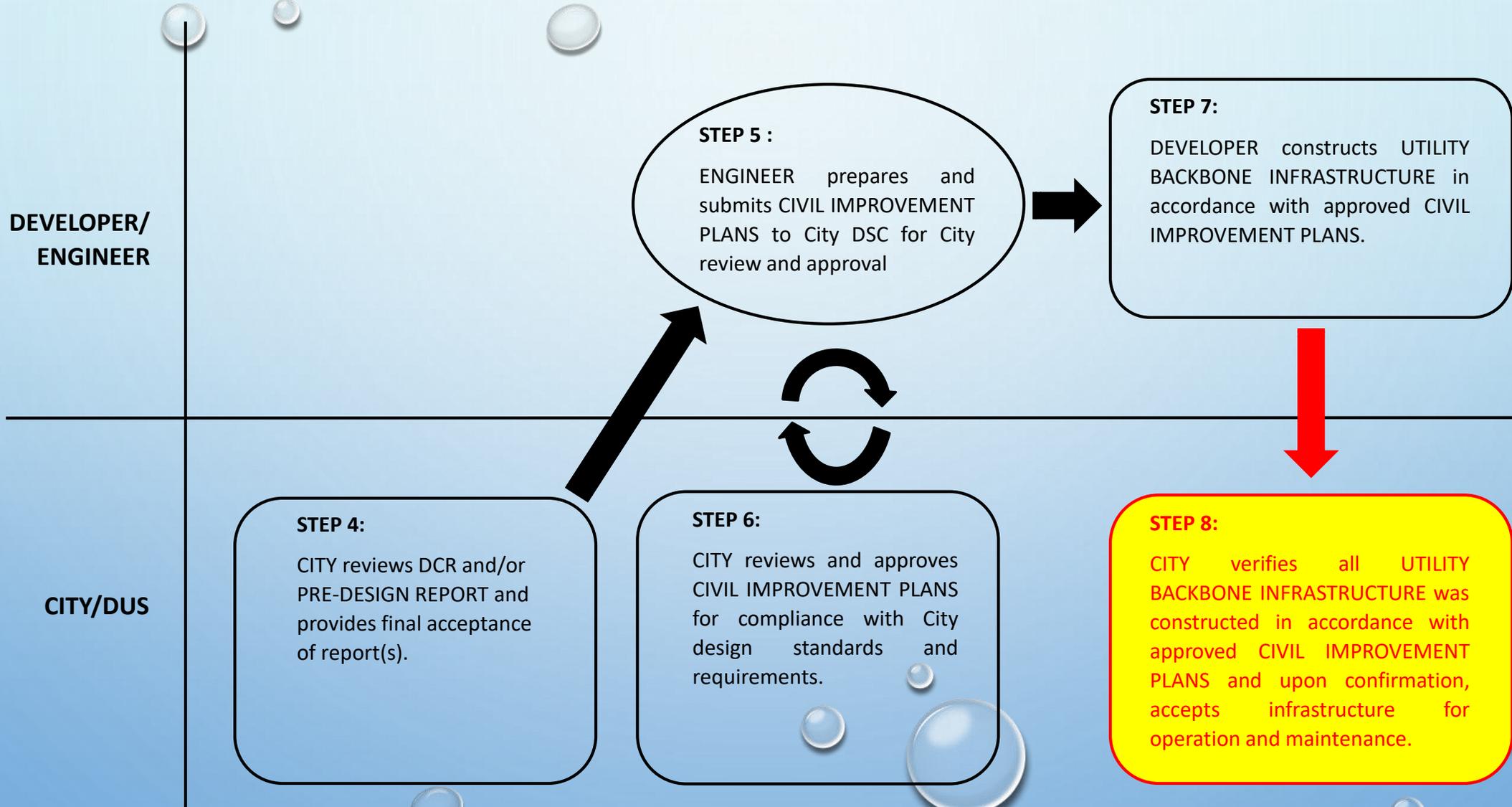
HMC CHAPTER 14.16 – REFUNDING REGULATIONS



HMC CHAPTER 14.16 – REFUNDING REGULATIONS



HMC CHAPTER 14.16 – REFUNDING REGULATIONS



HMC CHAPTER 14.16 – REFUNDING REGULATIONS

DEVELOPER/
ENGINEER

STEP 9:

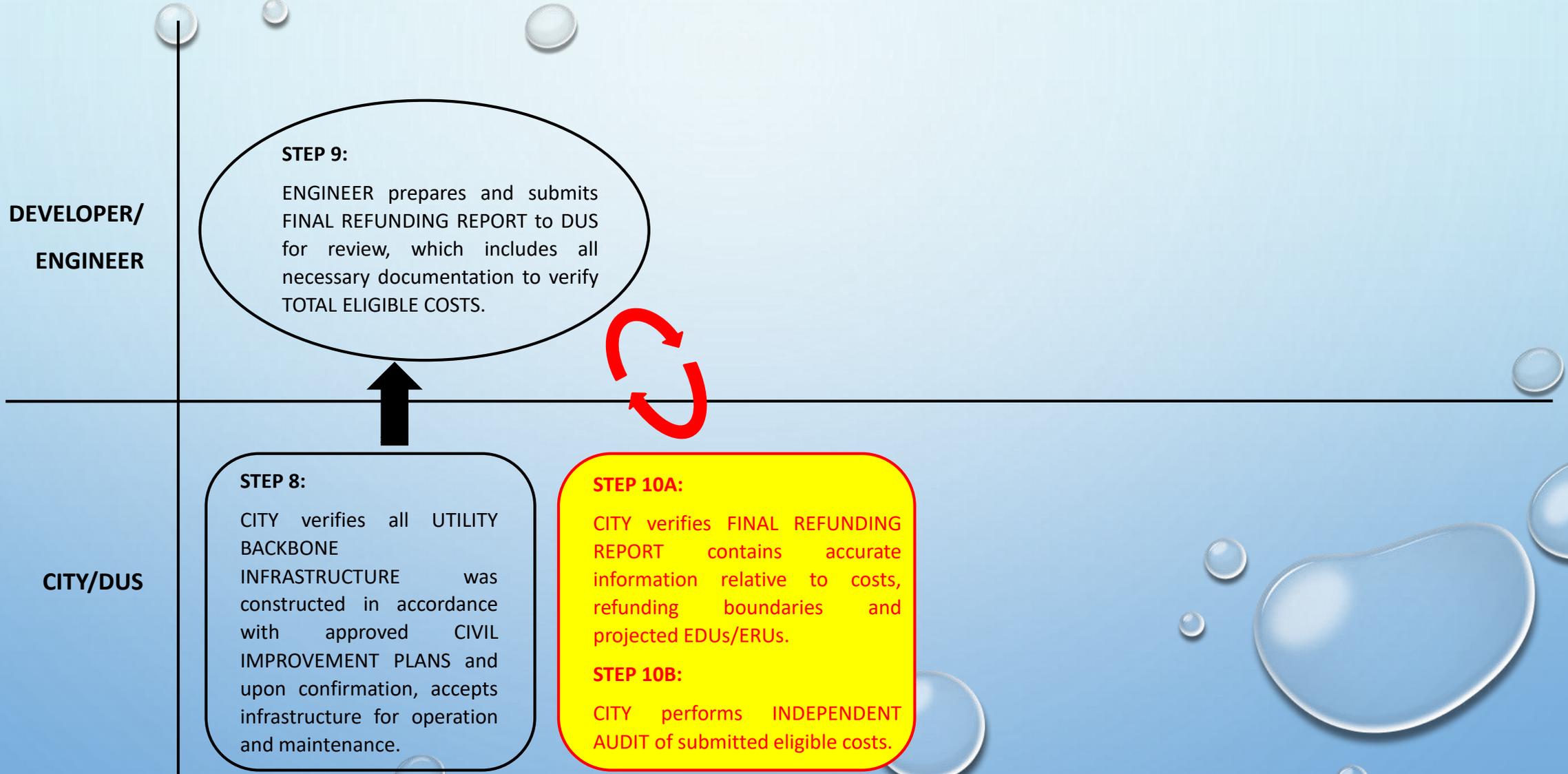
ENGINEER prepares and submits FINAL REFUNDING REPORT to DUS for review, which includes all necessary documentation to verify TOTAL ELIGIBLE COSTS.

CITY/DUS

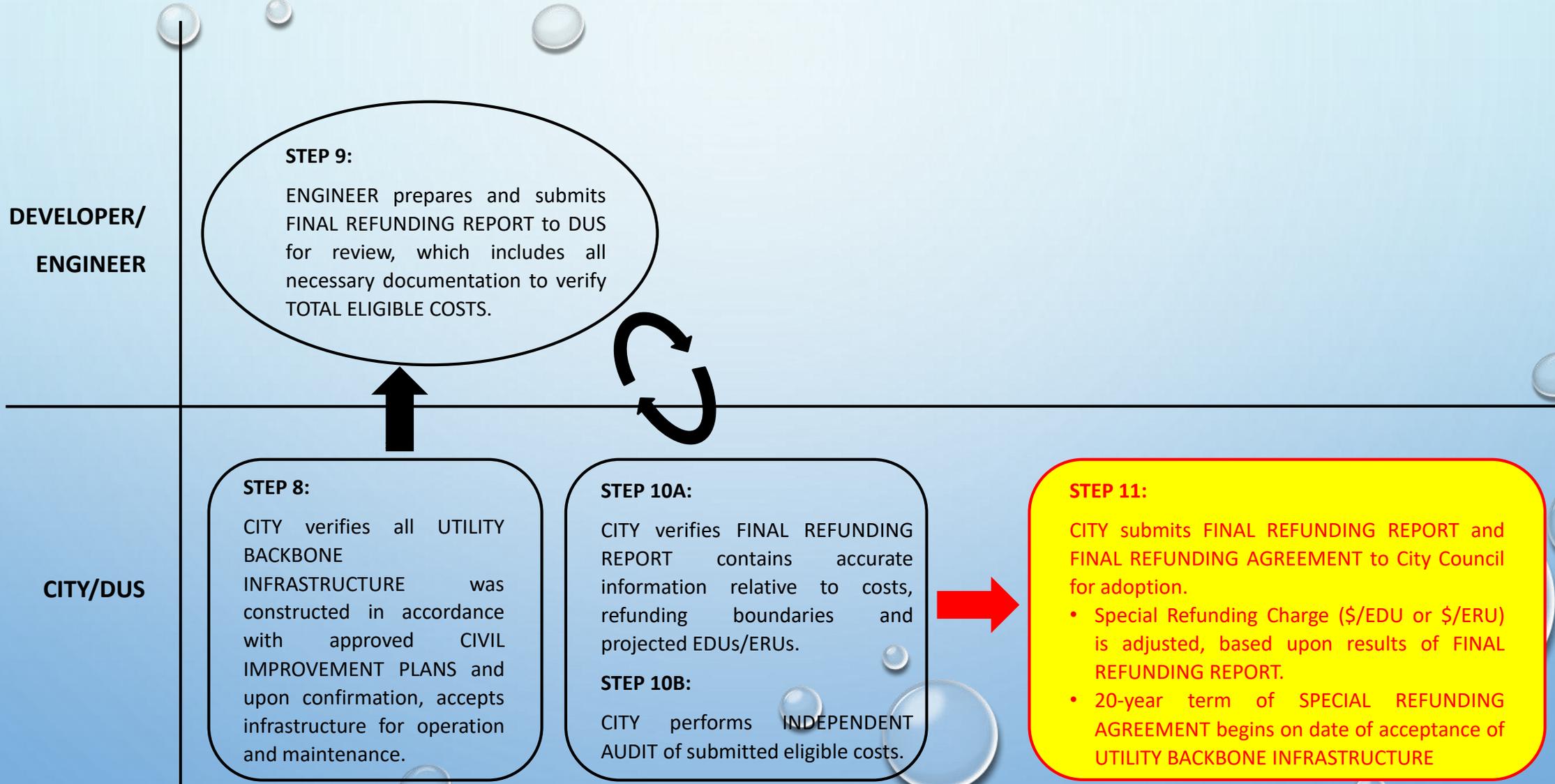
STEP 8:

CITY verifies all UTILITY BACKBONE INFRASTRUCTURE was constructed in accordance with approved CIVIL IMPROVEMENT PLANS and upon confirmation, accepts infrastructure for operation and maintenance.

HMC CHAPTER 14.16 – REFUNDING REGULATIONS



HMC CHAPTER 14.16 – REFUNDING REGULATIONS



STANDARD REFUNDING

HMC CHAPTER 14.16 – REFUNDING REGULATIONS

STANDARD REFUNDING (HMC 14.16.040):

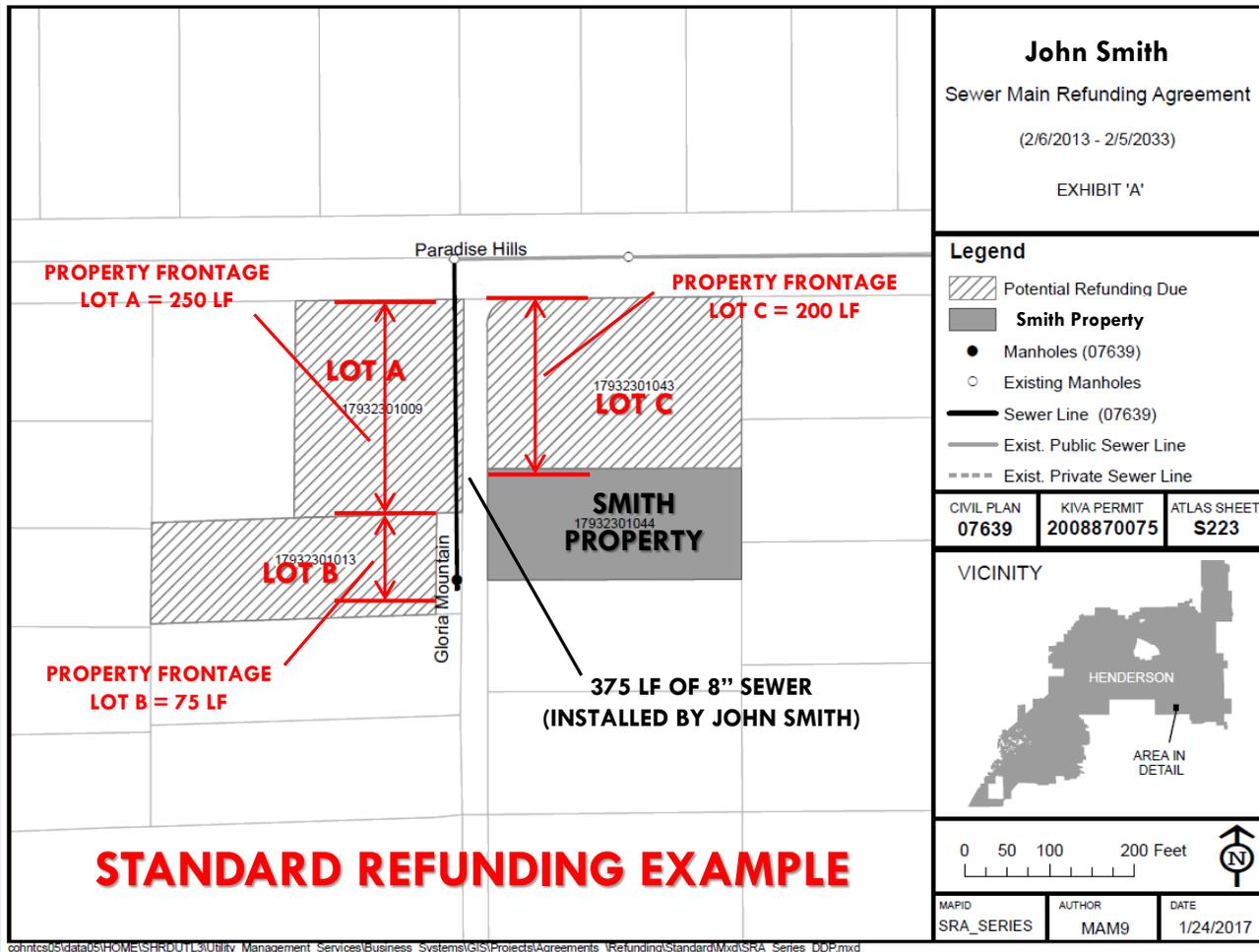
1. “Applicants requesting service to a property where no city main exists contiguous to the property, must first arrange for a main extension in accordance with this title and department service rules. Where such main exists but does not extend across the full extent of the property frontage, the city may require the applicant to extend the main to such extent prior to obtaining utility service..” (HMC 14.03.040 & 14.04.040)
2. “The City may enter into an agreement which provides for repayment of a portion of the cost of the main extension lying between the original point of supply and the customer’s property, from main frontage fees collected from other properties frontage to the main extension covered by such agreement ...” (HMC 14.16.040, paragraph A.1)
3. The following items may be eligible for standard refunding:
 - a) Water and sewer main extensions to a project
 - b) Water and sewer main extensions adjacent to a project
 - c) Water and sewer mains replacing existing mains

HMC CHAPTER 14.16 – REFUNDING REGULATIONS

STANDARD REFUNDING (HMC 14.16.040):

1. Applications for standard refunding agreements shall be submitted in writing within 90 days of the date of construction and city's acceptance of the infrastructure covered by such agreement.
2. Unlike special refunding, no standard refunding report is required.
3. Standard refunding agreements are not required to go to City Council for approval. Term of standard refunding agreements shall be 20 years, commencing on the date the infrastructure is accepted by the city.
4. Standard refunding calculations shall be assessed and collected based upon the frontage of the applicant's property

HMC CHAPTER 14.16 – REFUNDING REGULATIONS



Sewer and Water Main Frontage Fees

A minimum charge shall apply to any parcel having less than 60 feet of chargeable frontage. The minimum charge will be calculated by multiplying the lineal foot rate for the size of the main times 60 feet. Connections to serve median strips within a publicly dedicated right of way or land either owned or controlled by the public for landscaped trails and paths shall be charged the minimum charge regardless of the length of the median strip or landscaped area(s).

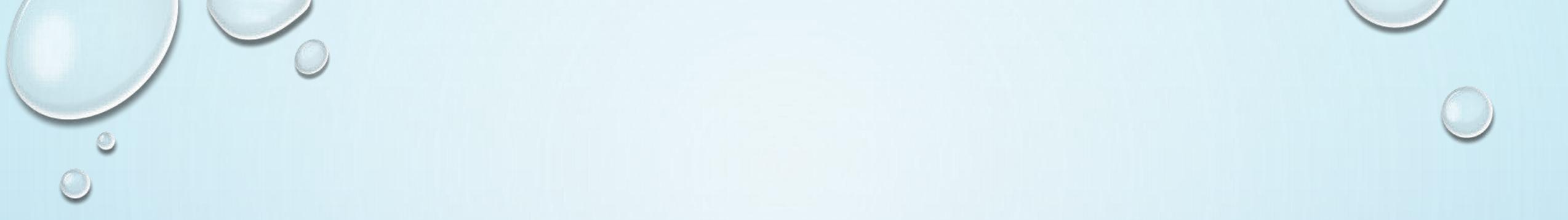
Diameter of Pipe	Assessment per lineal foot of footage
Less than 8"	\$17
8"	\$20
10"	\$32
12"	\$37
14"	\$50
15"	\$56
16"	\$63
20"	\$90

- Smith Standard Refunding**
- Construction of 375 LF of 8" Sewer Main
 - Eligible Amount of Refund:
 - Lot A = 250 LF x \$20/LF = \$5,000
 - Lot B = 75 LF x \$20/LF = \$1,500
 - Lot C = 200 x \$20/LF = \$4,000
- TOTAL ELIGIBLE AMOUNT = \$10,500**

SCHEDULED BREAK

9:50A – 10:00A

(10 MINUTES)



WEST HENDERSON

HEIDI DEXHEIMER, P.E.

UTILITY SERVICES INFRASTRUCTURE PLANNING MANAGER



WEST HENDERSON AGENDA

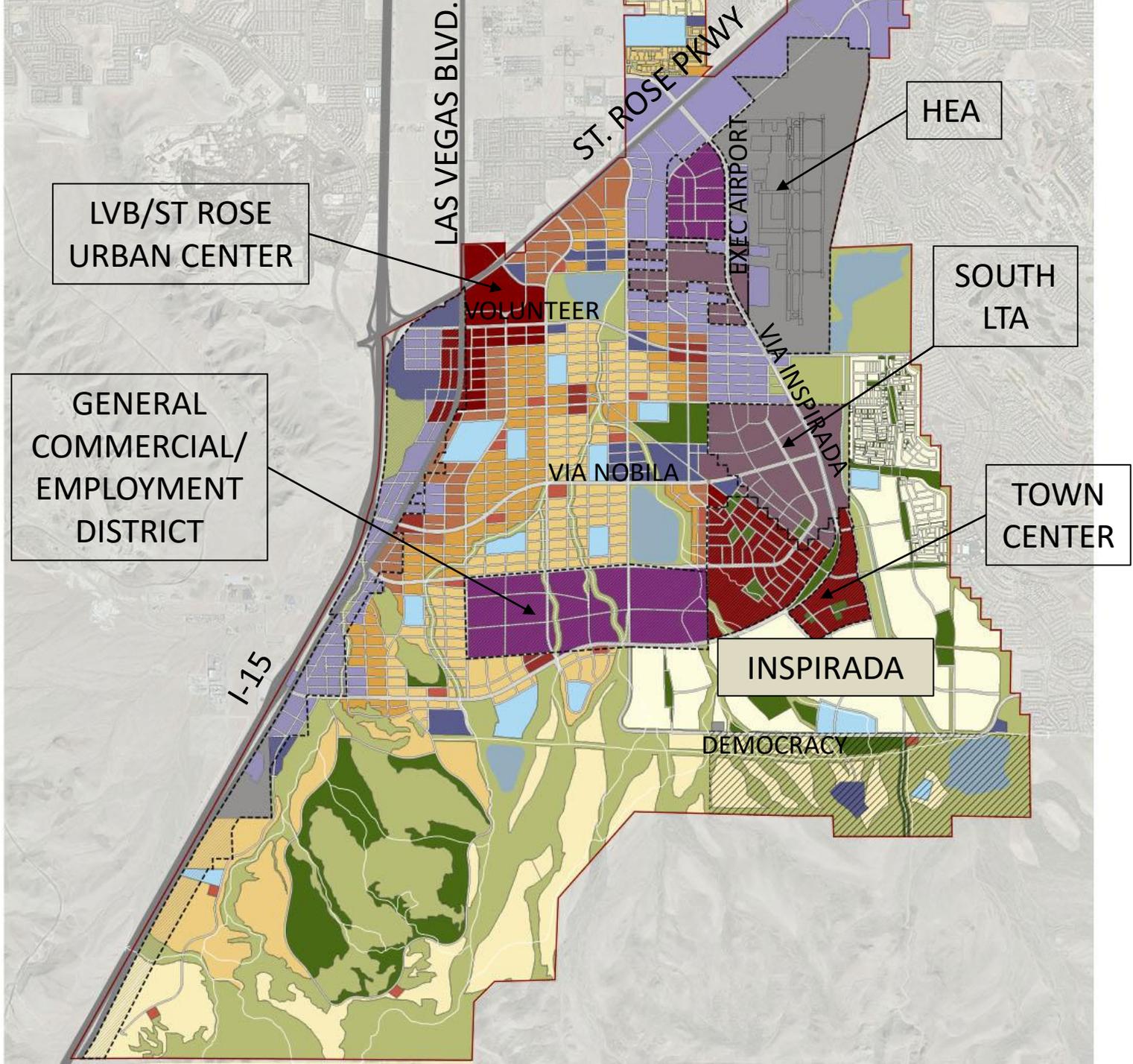
- OVERVIEW
- AREAS/PROJECTS OF INTEREST
- WHUFNA
- BERMUDA SEWER
- OTHER CITY PROJECTS IN WH AREA
- GOT A PROJECT IN WEST HENDERSON?





WEST HENDERSON

- 12,600 acres
- Population of nearly 70,000 by 2050
- Land Use Plan approved by City Council in December 2014
 - Urban Centers
 - Neighborhoods
 - Parks
 - Schools
 - Open Space
 - Special Districts



LVB/ST ROSE
URBAN CENTER

GENERAL
COMMERCIAL/
EMPLOYMENT
DISTRICT

HEA

SOUTH
LTA

TOWN
CENTER

INSPIRADA

LAS VEGAS BLVD.

ST. ROSE PKWY

EXEC AIRPORT

VIA INSPIRADA

VIA NOBILA

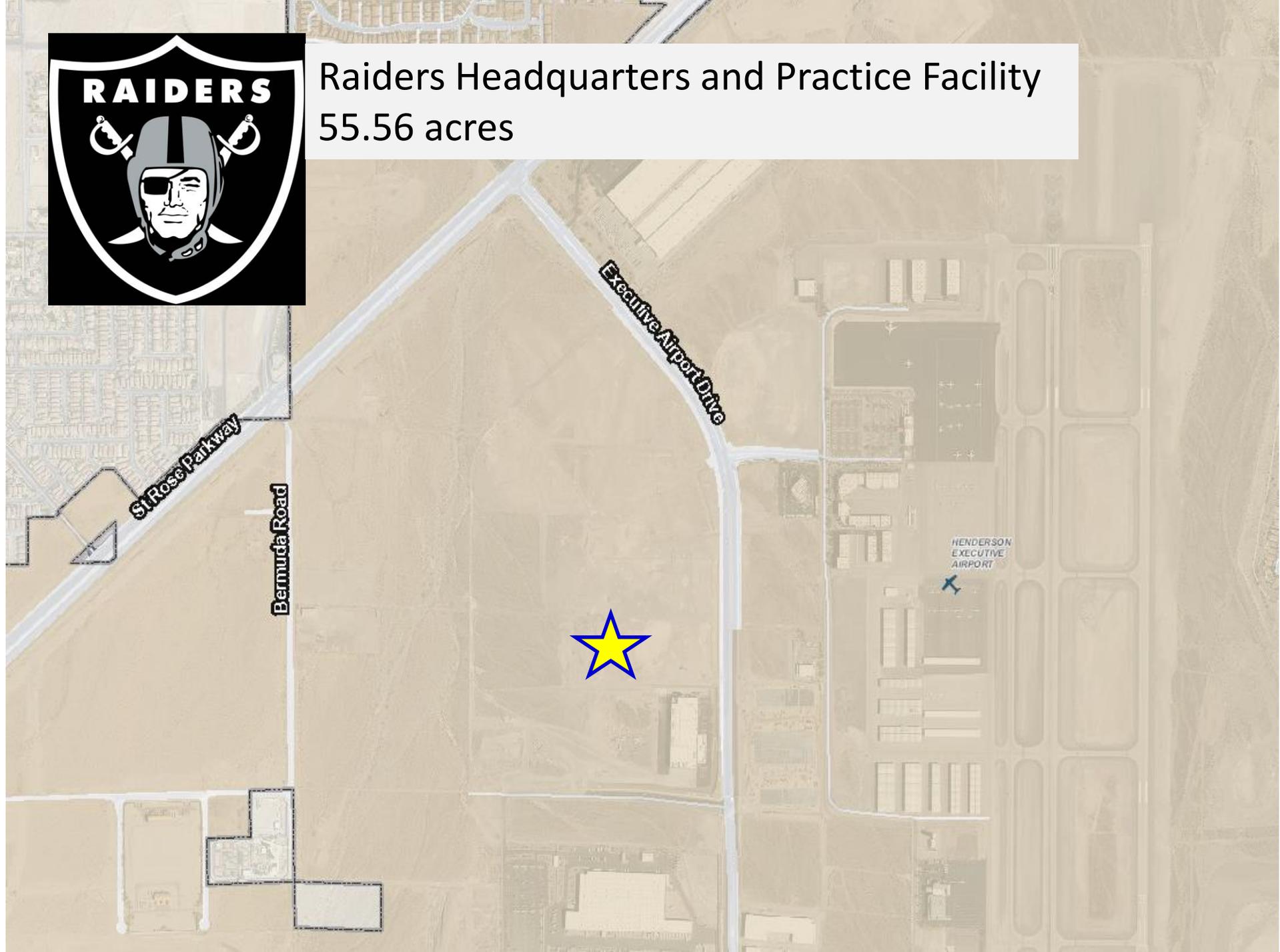
DEMOCRACY

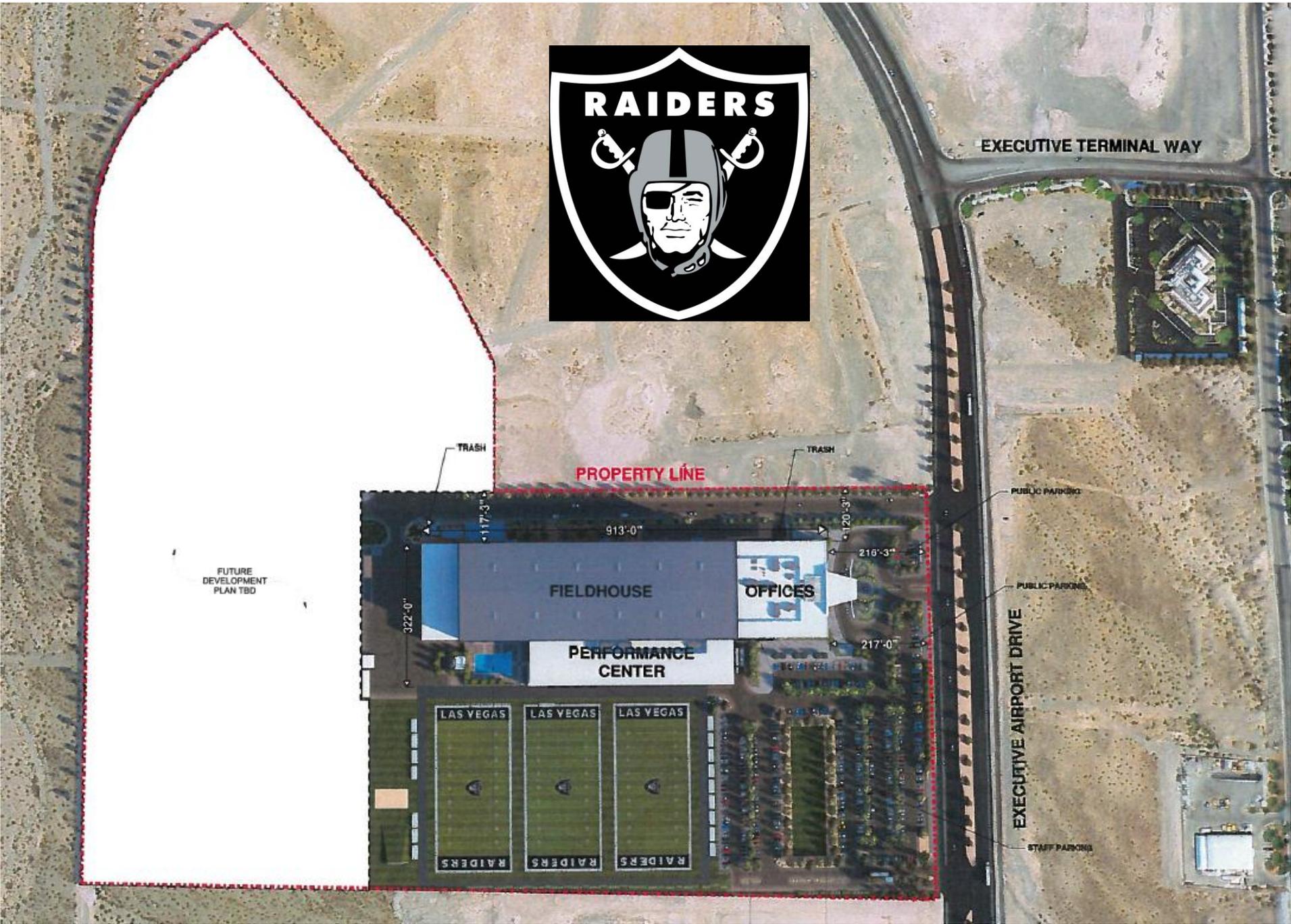
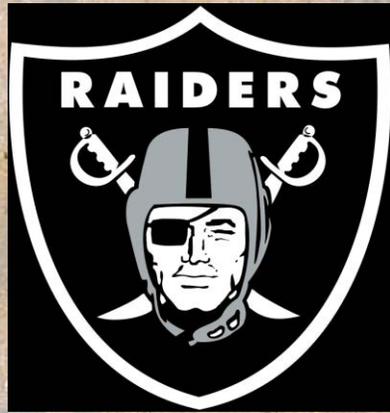
I-15

VOLUNTEER

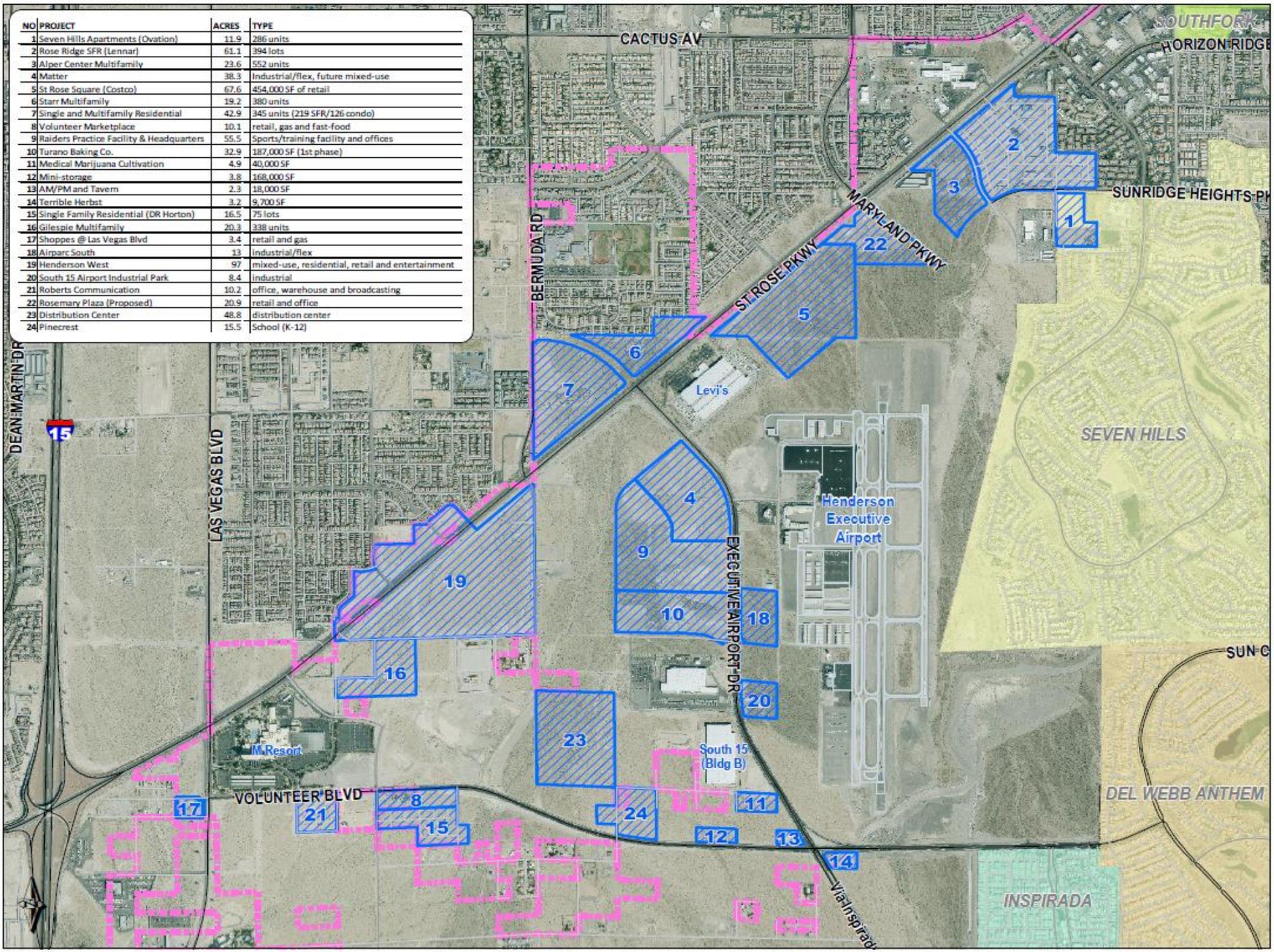


Raiders Headquarters and Practice Facility
55.56 acres





NO	PROJECT	ACRES	TYPE
1	Seven Hills Apartments (Ovation)	11.9	286 units
2	Rose Ridge SFR (Lennar)	61.1	394 lots
3	Alper Center Multifamily	23.6	552 units
4	Matter	38.3	Industrial/flex, future mixed-use
5	St Rose Square (Costco)	67.6	454,000 SF of retail
6	Starr Multifamily	19.2	380 units
7	Single and Multifamily Residential	42.9	345 units (219 SFR/126 condo)
8	Volunteer Marketplace	10.1	retail, gas and fast-food
9	Raiders Practice Facility & Headquarters	55.5	Sports/training facility and offices
10	Turano Baking Co.	32.9	187,000 SF (1st phase)
11	Medical Marijuana Cultivation	4.9	40,000 SF
12	Mini-storage	3.8	168,000 SF
13	AM/PM and Tavern	2.3	18,000 SF
14	Terrible Herbat	3.2	9,700 SF
15	Single Family Residential (DR Horton)	16.5	75 lots
16	Gillespie Multifamily	20.3	338 units
17	Shoppes @ Las Vegas Blvd	3.4	retail and gas
18	Airparc South	13	industrial/flex
19	Henderson West	97	mixed-use, residential, retail and entertainment
20	South 15 Airport Industrial Park	8.4	industrial
21	Roberts Communication	10.2	office, warehouse and broadcasting
22	Rosemary Plaza (Proposed)	20.9	retail and office
23	Distribution Center	48.8	distribution center
24	Pinecrest	15.5	School (K-12)



WHUFNA

WHUFNA

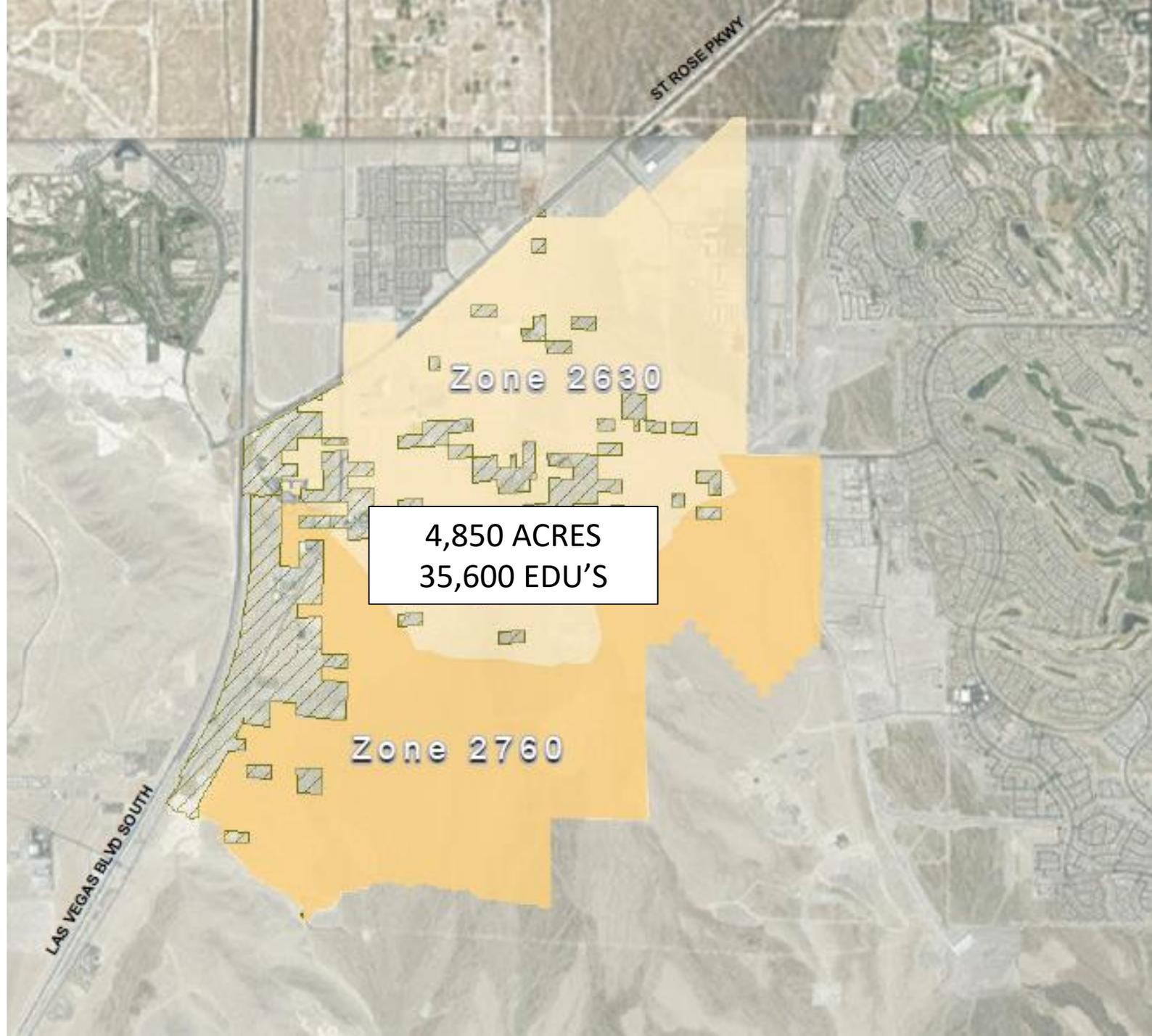
- “WOOF-NA”
- West Henderson Utility Facility Needs Assessment (i.e. the Utilities “equivalent” of PFNA)
- Official Name: West Henderson Phase 1 Backbone Infrastructure Rate
- HMC 14.18.045
- Adopted January 2017

- Lack of significant single developer in largely undeveloped area places the City in the role of “master developer”, responsible for planning and constructing the Phase 1 facilities.
- Funding Mechanism for City to recoup the costs of constructing the first ~20 MGD of water system capacity from those projects that benefit
- \$90M estimated cost (includes inflation)

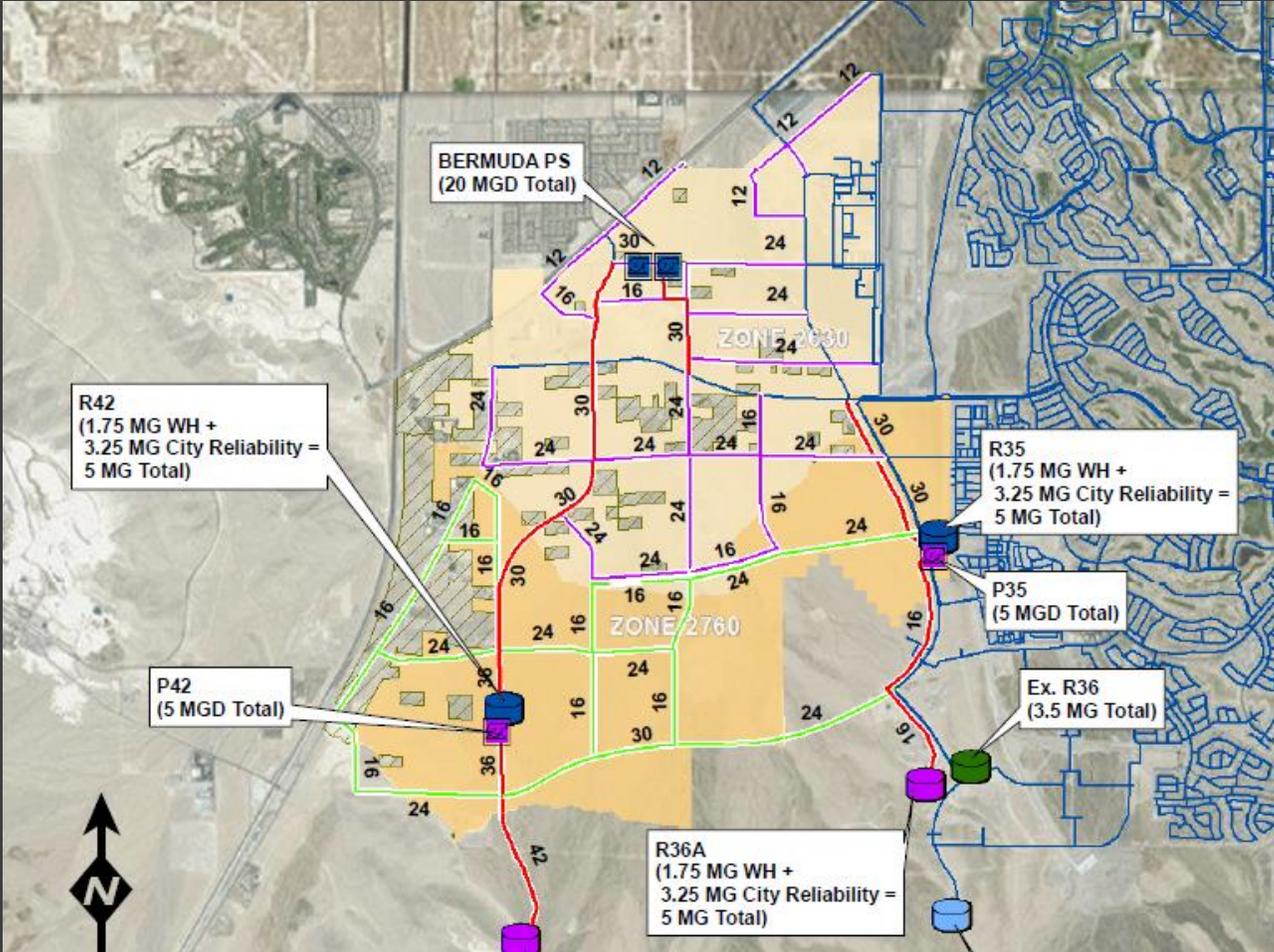
WHUFNA PURPOSE

RATE

- Fees charged with Building Permits
 - Residential-per Lot or Unit
 - Commercial-per Meter Size
- Rate indexed once each year by City Manager, with allowable increase of up to 5% (+1.42% in 2019)
- The City is paying \$23M for reliability improvements outside of WHUFNA
- Opportunity for developer to participate in major infrastructure in lieu of paying WHUFNA fees



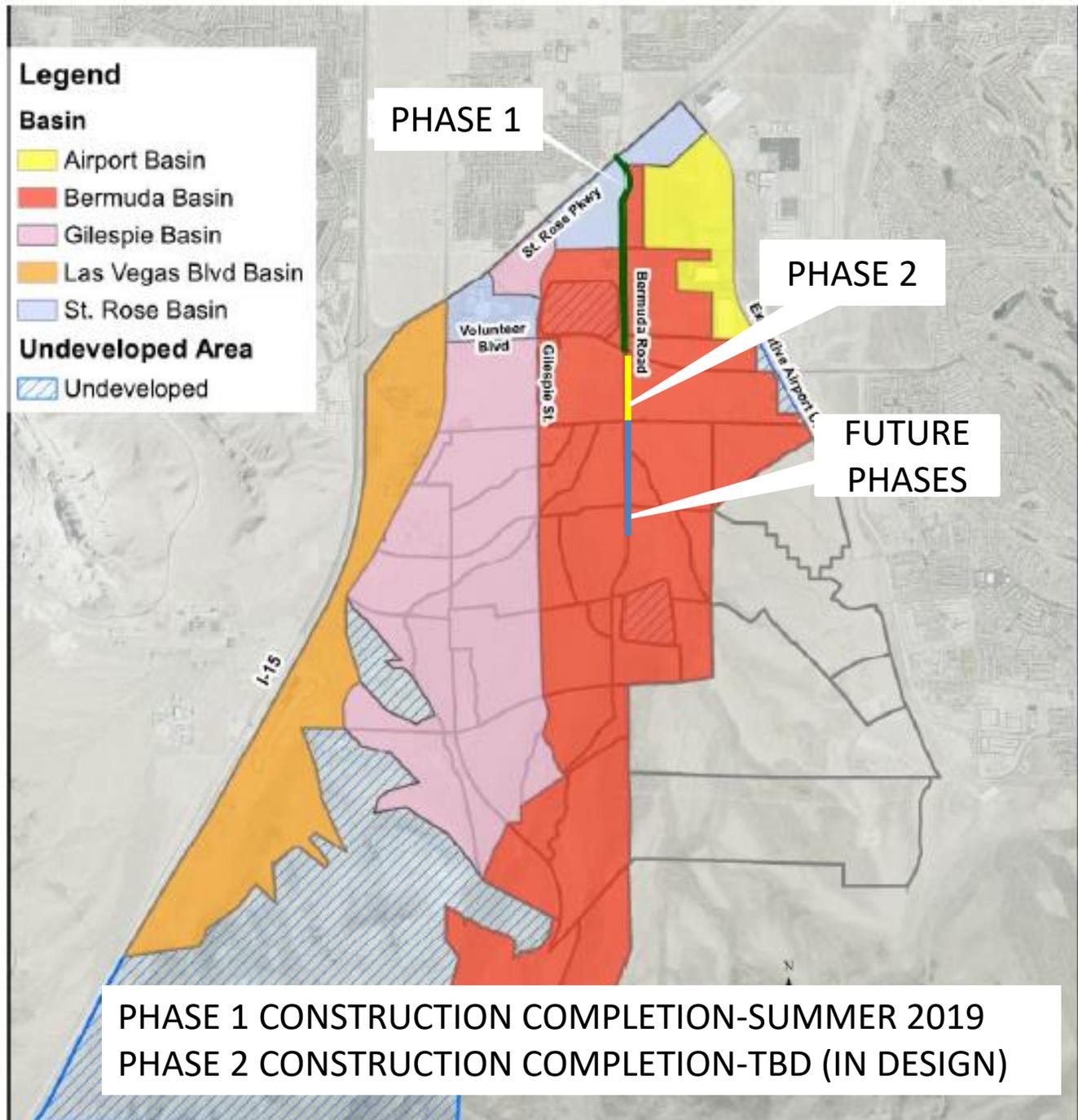
WHUFNA- PHASE 1 FACILITIES



BERMUDA SEWER

BERMUDA SEWER

Basin	Area (Acres)
Bermuda	4,135
Gillespie	1,490
St. Rose	155
Las Vegas Blvd.	860
Executive Airport	250

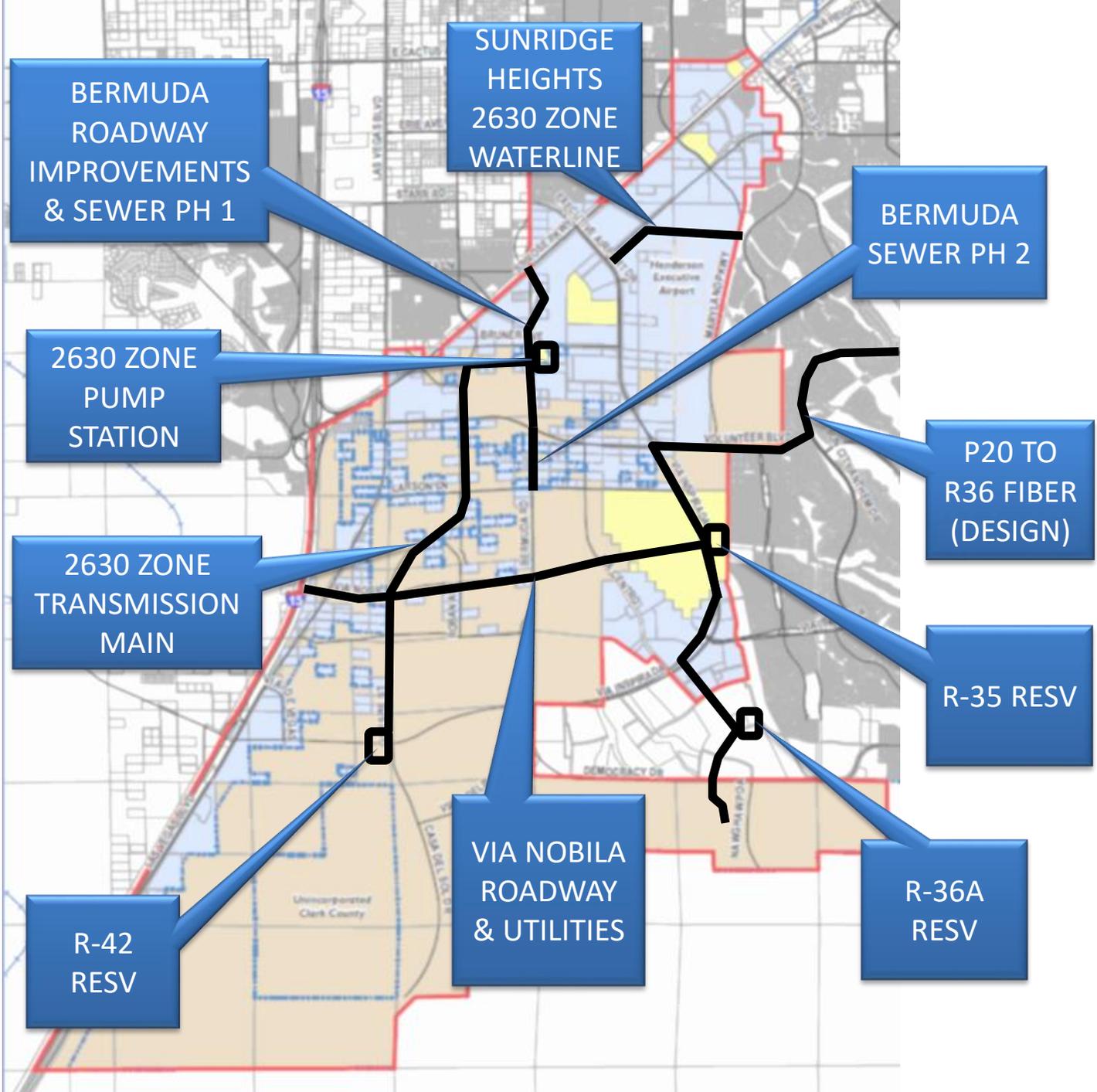




BERMUDA SEWER RATE

- RATE WILL BE ESTABLISHED BY ORDINANCE
- SUMMER 2019
- ESTIMATED FEES:
 - PHASE 1~\$90 PER ERU
 - PHASE 2-FORTHCOMING
- OUTREACH FOR BUSINESS IMPACT STATEMENT

**OTHER CITY
PROJECTS IN
WH AREA**



DOING A PROJECT IN WEST HENDERSON?

- Pre-Submittal Meetings Encouraged
- Development Agreements Required
- Records request for as-builts (Contact Henderson app or online)
- Request a fee estimate
 - WHUFNA
 - Special Refunding Areas
 - SNWA Regional Fees
 - System Development Charges and other Title 14 Fees
- Main extensions may be required to meet dual feed requirements for Fire Code.
- Oversizing may be required

The background is a light blue gradient with several realistic water droplets of various sizes scattered in the corners. The droplets have highlights and shadows, giving them a three-dimensional appearance.

REGULATORY PROGRAMS

TONY VENTIMIGLIA, P.E., UTILITY SERVICES PROJECT DELIVERY MANAGER

JOHN HAUSER, CROSS CONNECTION CONTROL TECHNICIAN



PRETREATMENT PROGRAM

TONY VENTIMIGLIA, P.E., UTILITY SERVICES PROJECT DELIVERY MANAGER

PRETREATMENT PROGRAM

THE PRETREATMENT PROGRAM REGULATES THE DISCHARGE OF POLLUTANTS FROM NONDOMESTIC SOURCES TO PUBLICLY OWNED TREATMENT WORKS (POTW).

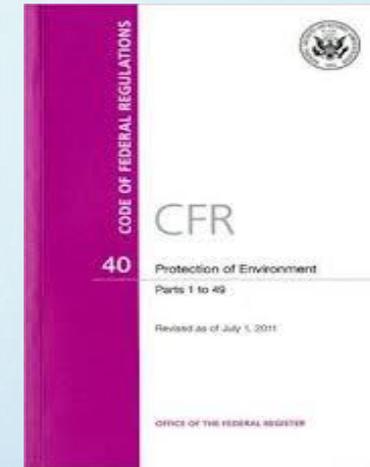
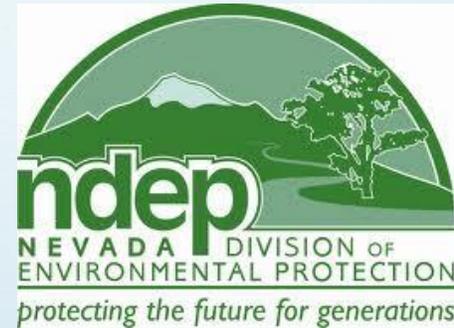


GOALS & OBJECTIVES



- PREVENT THE INTRODUCTION OF POLLUTANTS INTO THE POTW THAT WILL CAUSE PASS THROUGH OR INTERFERENCE WITH THE COLLECTION &/OR TREATMENT PROCESSES.
- PROTECT POTW PERSONNEL, THE GENERAL PUBLIC AND THE ENVIRONMENT.
- IMPROVE OPPORTUNITIES TO REUSE AND RECYCLE TREATED WASTEWATER AND SLUDGE.

LEGAL AUTHORITY



- THE PRETREATMENT PROGRAM IS MANDATED BY THE FEDERAL CLEAN WATER ACT. THE SPECIFIC REQUIREMENTS OF A PRETREATMENT PROGRAM ARE IDENTIFIED IN 40CFR403.
- STATE AUTHORITY IS GRANTED UNDER NRS445A.
- LOCAL PRETREATMENT PROGRAM REGULATIONS ARE ESTABLISHED IN HENDERSON MUNICIPAL CODE (HMC) 14.09.

PRETREATMENT PROGRAM OVERSIGHT

- FAT, OIL AND GREASE PROGRAM
(FOG)
- PERMITTING OF INDUSTRIAL USERS
FOR COMPLIANCE WITH LOCAL
LIMITS



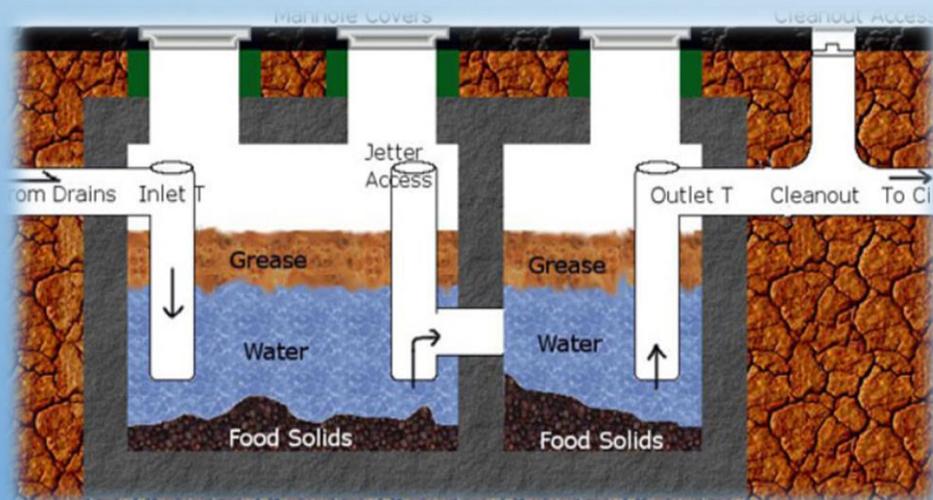
FOG PROGRAM

- TRACKING NEARLY 1,000 FOOD SERVICE ESTABLISHMENTS (FSE)
- GRAVITY GREASE INTERCEPTORS (GGI) ARE REQUIRED FOR ALL FSES.
 - SIZED PER UNIFORM PLUMBING CODE
 - BUILDING FIRE SAFETY PLAN EXAMINERS REVIEW PLANS AND SIZING CRITERIA
- BUILDING ALTERNATIVE METHOD (BAM) PROCESS IN PLACE FOR FACILITIES THAT WISH TO DEVIATE FROM INSTALLATION OF A GGI
 - LIMITED RISK OF FOG
 - SPACE RESTRICTIONS PREVENT TRADITIONAL GGI
 - COMMON GGI



FOG PROGRAM

- HMC14.09.160, REQUIRES GGIS BE PUMPED EVERY 90 DAYS, OR WHENEVER;
 - EFFLUENT FOG CONCENTRATIONS EXCEED 250 MG/L.
 - ACCUMULATION OF GREASE AND SOLIDS REDUCE THE CAPACITY OF THE INTERCEPTOR BY TWENTY-FIVE PERCENT.
 - TOXIC, NOXIOUS, MALODOROUS CONDITIONS CREATE A PUBLIC NUISANCE, UNSAFE WORKING CONDITIONS, OR ENDANGER LIFE AND HEALTH OR THE ENVIRONMENT.



CASE STUDY

IN 2017, A MASSIVE “FAT BERG” WAS DISCOVERED IN THE LONDON SEWERS. THE GIANT MASS OF HARDENED FATS, OILS, AND GREASE (FOG) COMBINED WITH DISPOSABLE WIPES AND OTHER SOLIDS TO FORM A 150-TON, 820-FOOT-LONG MASS. AS A RESULT, NEARLY 7,000 CUSTOMERS EXPERIENCED SEWER BACKUPS. IT TOOK NEARLY 4 MONTHS TO CLEAR AND COST THE LOCAL UTILITY COMPANY APPROXIMATELY \$1.6 MILLION. A PIECE OF THAT RECORD-BREAKING FATBERG WAS PUT ON DISPLAY IN THE MUSEUM OF LONDON.



COMMON INTERCEPTORS

- BE AWARE THAT THE CITY DOES NOT APPROVE INSTALLATION OF COMMON INTERCEPTORS EXCEPT UNDER LIMITED CIRCUMSTANCES:

HYDRAULIC LIMITATIONS

SEVERE SPACE CONSTRAINTS

PRETREATMENT CONTACT INFORMATION

PHONE

(702)267-2603

EMAIL

COHPT@CITYOFHENDERSON.COM

MAILING ADDRESS

CITY OF HENDERSON

ATTENTION – PRETREATMENT

P.O. BOX 95050 – MSC 814

450 E. GALLERIA DR., USSB

HENDERSON, NEVADA 89009-5050

QUESTIONS





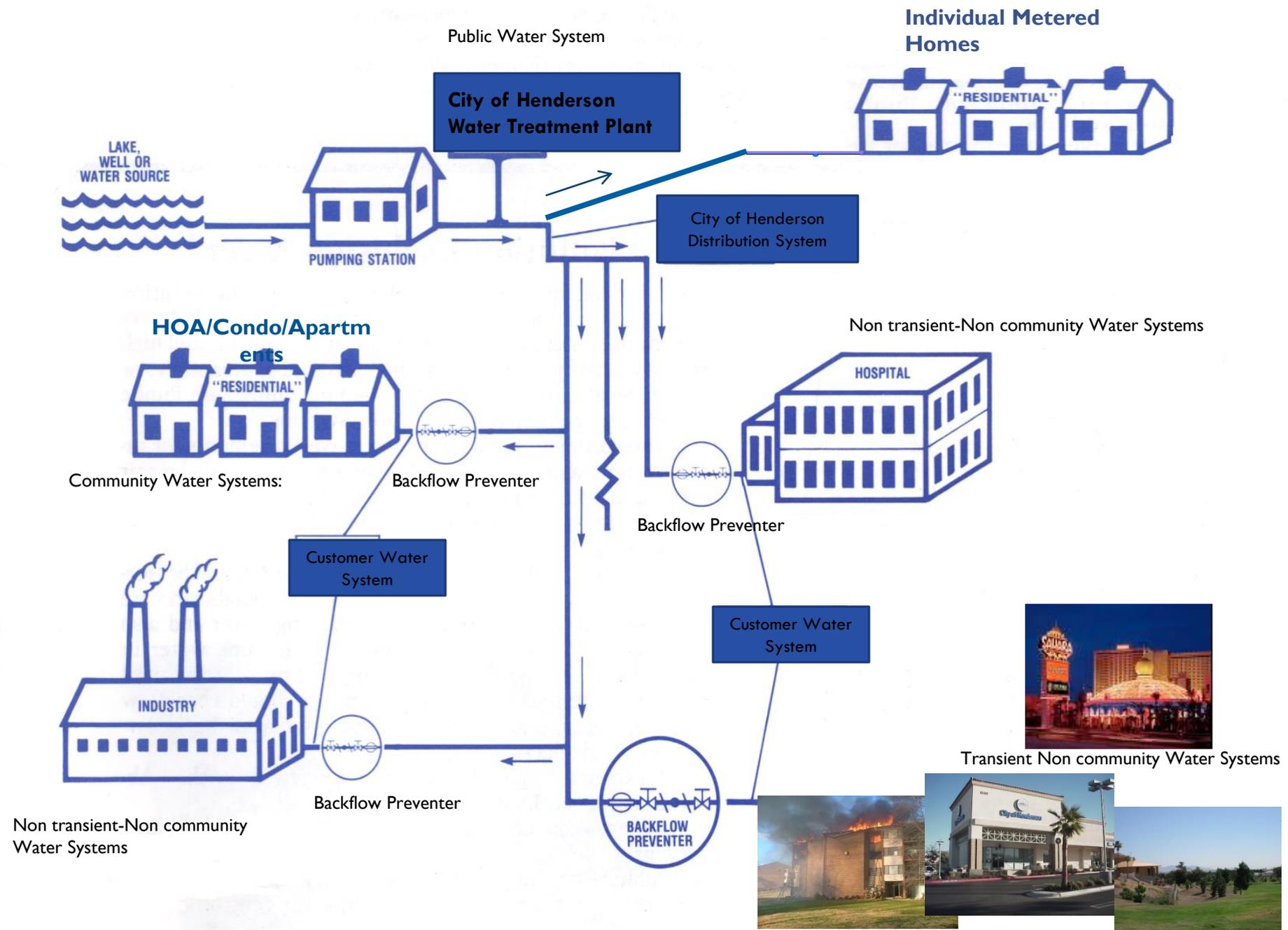
CROSS CONNECTION CONTROL

JOHN HAUSER, CROSS CONNECTION CONTROL TECHNICIAN



CROSS-CONNECTION CONTROL PROTECTING THE CITY'S WATER SYSTEM

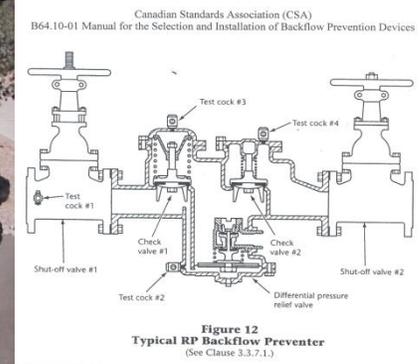




TYPES OF PROTECTION



Air Gap



Reduced Pressure Principle Assembly



Fire System RPDA's

DEDICATED FIRE BFA NEXT TO IRRIGATION METER WITH BFA



BFA IN AN ENCLOSURE PROTECTING COMBINATION METER



CROSS-CONNECTION CONTROL

- **HYDRANTS BEING USED FOR CONSTRUCTION.**
- CITY OF HENDERSON METERS ON THE JONES VALVES
- STAND TANKS WITH PROPER AIR GAP
- **APPROVED MATERIALS LIST**
- BFA'S > 2 INCH OS&Y ONLY
- ENCLOSERS ASSE 1060
- **BFA'S TESTED AT TIME OF INSTALLATION**
- C OF O REQUIRES PASSING TEST REPORTS
- **ALL NEW DEDICATED FIRE SYSTEMS REQUIRE RPDA'S**
- **HOMES WITH DEDICATED FIRE SYSTEMS AND / OR IRRIGATION METERS REQUIRE**
- **RPPA'S AND RPDA'S AND MUST BE TESTED**
- UDACS PLATES 56 AND 8
- ORPHAN FIRE SYSTEMS

CROSS-CONNECTION CONTROL

OUR TEAM IS HERE TO HELP

EUGENE BRAGAZZI, CROSS-CONNECTION CONTROL SUPERVISOR

JOHN HAUSER, CROSS-CONNECTION CONTROL TECHNICIAN

CHRIS SHULTZ, CROSS-CONNECTION CONTROL TECHNICIAN

PHONE: (702)267-2611 / (702)267-2655



PLAN APPROVAL & PLAN CHECK PROCESSES

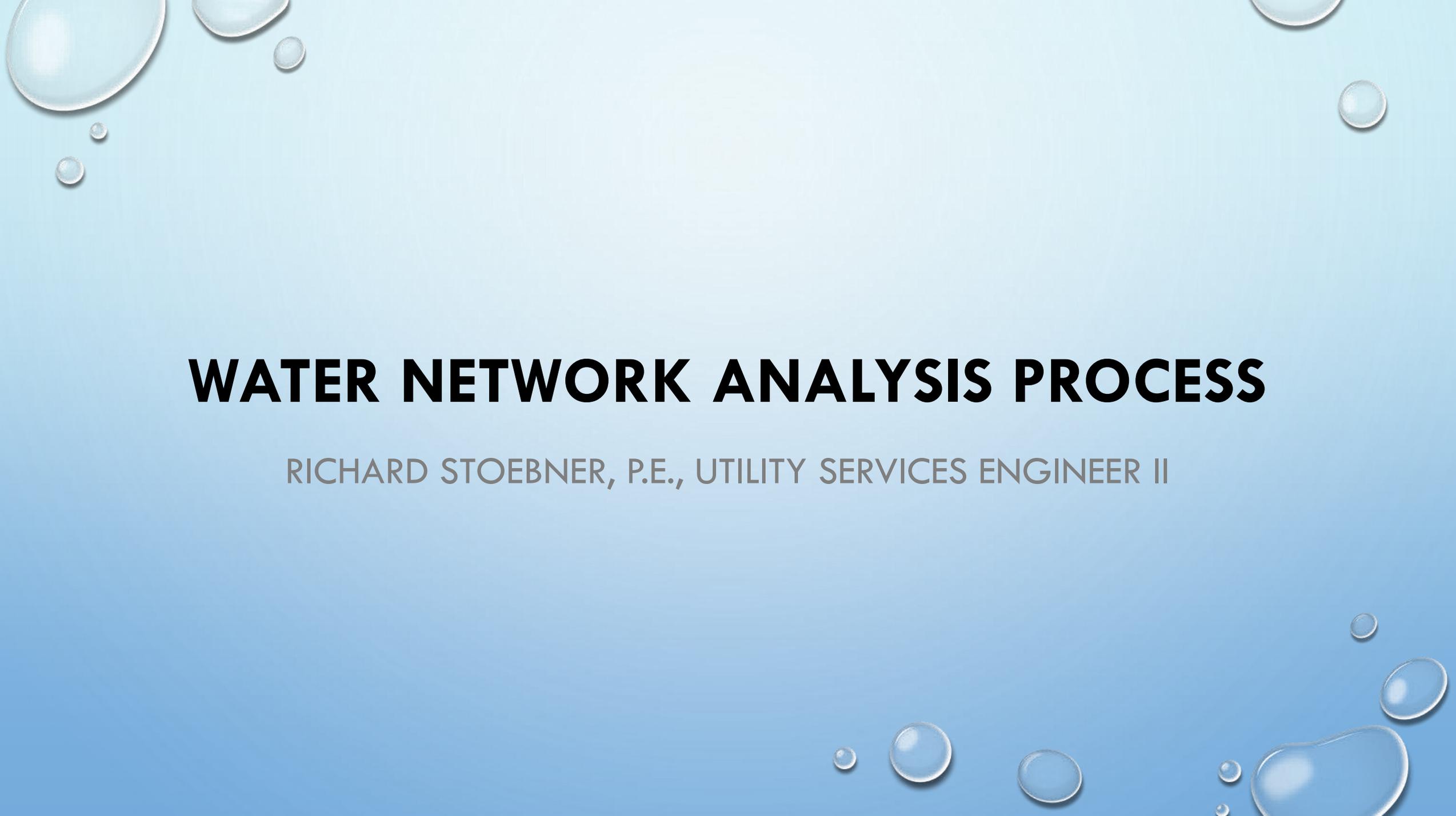
BRIAN COOMBS, P.E., UTILITY SERVICES NEW DEVELOPMENT SUPERVISOR

RICHARD STOEBNER, P.E., UTILITY SERVICES ENGINEER II

JASON WYRICK, UTILITY PLANS EXAMINER II

BRIAN BROWN, UTILITY PLANS EXAMINER II

MARLO GREGG, UTILITY PLANS EXAMINER I

The background is a light blue gradient with several realistic water droplets of various sizes scattered in the corners. The droplets have highlights and shadows, giving them a three-dimensional appearance.

WATER NETWORK ANALYSIS PROCESS

RICHARD STOEBNER, P.E., UTILITY SERVICES ENGINEER II



• **REQUIRED ELEMENTS FOR WATER NETWORK ANALYSES (WNA)**

- COPY OF HGL E-MAIL IN APPENDIX
 - WATER DEMAND CALCULATIONS IN APPENDIX
 - SUBMITTAL
 - TWO HARD COPIES, **OR**
 - ELECTRONIC COPY
- 



USEFUL ELEMENTS FOR WATER NETWORK ANALYSES (WNA)

- SHOW UNET NUMBER ON COVER PAGE
- PIPE & NODE EXHIBIT THAT IS LEGIBLE
 - COLOR-CODING BY PIPE SIZE IS APPRECIATED



CLARIFICATION ON REQUIRED RESIDUAL PRESSURES

- 40 PSI MAX DAY AND 30 PSI PEAK HOUR
 - UPSTREAM OF METER AND BACKFLOW DEVICE
- 20 PSI MAX DAY PLUS FIRE
 - RESIDUAL PRESSURE AT FIRE HYDRANT
 - DOWNSTREAM OF BACKFLOW DEVICE, FOR ON-SITE HYDRANTS

DUAL FEED REQUIRED IF:

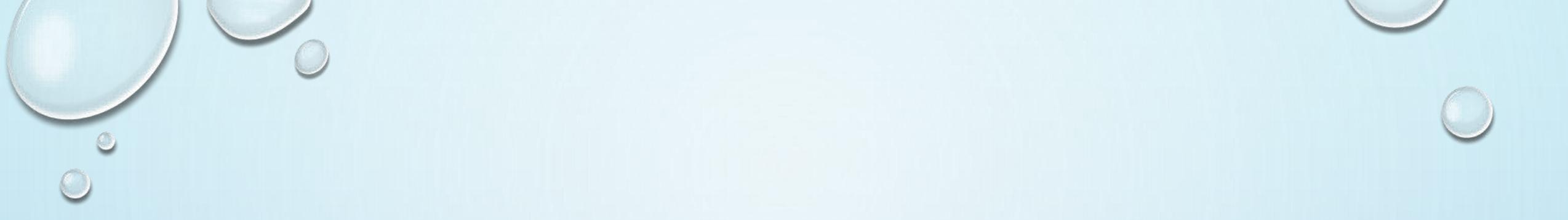
- ON-SITE FIRE SYSTEM HAS MORE THAN 3 FIRE CONNECTIONS
 - HYDRANTS AND BUILDING FIRE RISERS COMBINED
- DEVELOPMENT HAS MORE THAN 3 HYDRANTS OR MORE THAN 30 LOTS
- CRITERIA RELAXED FOR HILLSIDE ZONING AREAS

COMMON ERRORS IN WATER NETWORK ANALYSES

- “QC IS KEY!”
- REPORT TEXT INADVERTENTLY CARRIED OVER FROM PREVIOUS WNA
- SPELLING AND GRAMMAR ERRORS
- PIPE & NODE NUMBERS DON'T MATCH BETWEEN EXHIBIT AND TABLES
- PIPE DIAMETERS ON EXHIBIT DON'T MATCH THOSE IN TABULAR OUTPUT
- 3-INCH DIAMETER PIPE FOR SERVICE LATERALS

WHERE TO FIND ADDITIONAL DETAILS

- **HGL REQUEST FORM:** [HTTPS://CITYOFHENDERSON.COM/DOCS/DEFAULT-SOURCE/UTILITY-SERVICES-DOCS/APPLICATIONS-AND-DOWNLOADABLE-FORMS/TECHNICAL-SERVICES---NEW-DEVELOPMENT/HGL-REQUEST-FORM.PDF?SFVRSN=2](https://CITYOFHENDERSON.COM/DOCS/DEFAULT-SOURCE/UTILITY-SERVICES-DOCS/APPLICATIONS-AND-DOWNLOADABLE-FORMS/TECHNICAL-SERVICES---NEW-DEVELOPMENT/HGL-REQUEST-FORM.PDF?SFVRSN=2)
- **WATER CALCULATION GUIDELINES:** [HTTPS://CITYOFHENDERSON.COM/DOCS/DEFAULT-SOURCE/UTILITY-SERVICES-DOCS/DEPARTMENT-SERVICE-RULES.PDF?SFVRSN=18](https://CITYOFHENDERSON.COM/DOCS/DEFAULT-SOURCE/UTILITY-SERVICES-DOCS/DEPARTMENT-SERVICE-RULES.PDF?SFVRSN=18)



PLAN APPROVAL & PLAN CHECK

BRIAN BROWN, UTILITY PLANS EXAMINER II

JASON WYRICK, UTILITY PLANS EXAMINER II



• REMINDERS FOR UTILITY PLANS

- WATER PIPELINE DESIGN MUST MATCH APPROVED WNA
- COH DUS ALLOWS 5-DEGREE DUCTILE-IRON FITTINGS
- CONSTRUCTION NOTE LABELS ARE REQUIRED ON PLAN AND PROFILE SHEETS
- WATER AND SEWER MAINS – LOCATIONS AND SPACING
- SMALLER SEWER TYING INTO LARGER SEWERS – MUST MATCH CROWNS
- REMEMBER TO USE THE UDACS AND DCSWCS ADDENDA
- UTILITY ASSET INFORMATION BOXES

WATER METER TABLE

- PROVIDE PROJECT DENSITY AND DOMESTIC DEMAND
- METER TABLE QUANTITIES MUST MATCH QUANTITY ESTIMATES ON ALL SHEETS
- PROVIDE DOMESTIC DEMAND FOR LARGE METERS FOR BILLING/FEES
- METER SIZING

RESIDENTIAL SUBDIVISION WATER METER TABLE

TYP. WATER METER SUMMARY TABLE

UNIT 2 LOT DENSITY: 4.87 LOTS/ACRE

OVERALL LOT DENSITY: 5.52 LOTS/ACRE

		PUBLIC	PRIVATE
1.	PROPOSED 1" DOMESTIC RFM (3/4" DEMAND) (PUBLIC)	34	-
2.	1-1/2" IRRIGATION METER W/ RPPA (PUBLIC)	1	-
3.	RELOCATE EXISTING 1" DOMESTIC RFM (3/4" DEMAND) (PUBLIC) PCVL#2017896449	12	-

COMMERCIAL/MULTI-FAMILY WATER METER TABLE

UHGL HYDRAULIC ANALYSIS # UNET 2018000949

WATER METER SUMMARY TABLE

SIZE	TYPE	USE	QTY
6"	TURBINE	FIRE/DOM.	2
TOTAL SITE DOMESTIC DEMAND = 265 GPM CONT (DOMESTIC DEMAND EQUIVALENT IS (2) 4" TURBINE METERS)			
1-1/2"	TURBINE	IRRIGATION	1

COMMERCIAL/MULTI-FAMILY WATER METER TABLE

WATER METER TABLE

	QUANTITY	UNIT
6" TURBINE METER AND VAULT:	2	EA.
RESIDENTIAL DOMESTIC EQUIVALENT(3" METER)	2	EA.

RESTRAINED JOINT CALCULATIONS

- SUBMIT RESTRAINED JOINT CALCS WITH INITIAL PLAN SUBMITTALS
- IN-LINE VALVES ARE TO BE CALCULATED AS DEAD-ENDS
- FILL AREAS
- PROVIDE SUMMARY TABLE ON PLAN SHEETS

RESTRAINED JOINT TABLE

RESTRAINED JOINTS CALCULATIONS

Horizontal Bends					Tee Connection, Reducers & Caped Ends			
Diameter	Pressure	Angle	Depth	Restrained Length	Size	Pressure	Depth	Restrained Length
6	200	11.25	3.5	3	8x8x6	200	3.5	20
6	200	22.5	3.5	6	8x8x8	200	3.5	52
6	200	45	3.5	11	10x10x6	200	3.5	6
6	200	90	3.5	27	10x10x8	200	3.5	42
8	200	11.25	3.5	4	10x10x10	200	3.5	70
8	200	22.5	3.5	7	12x12x6	200	3.5	0
8	200	45	3.5	15	12x12x8	200	3.5	33
8	200	90	3.5	35	12x12x10	200	3.5	63
8	225	11.25	3.5	4	12x12x12	200	3.5	90
8	225	22.5	3.5	8				
8	225	45	3.5	17	8X6	200	3.5	38
8	225	90	3.5	39	10X6	200	3.5	67
10	200	11.25	3.5	5	10x8	200	3.5	37
10	200	22.5	3.5	9	12x6	200	3.5	94
10	200	45	3.5	18	12x8	200	3.5	68
10	200	90	3.5	42	12x10	200	3.5	38
12	200	11.25	3.5	5				
12	200	22.5	3.5	10	6"	200	3.5	68
12	200	45	3.5	21	8"	200	3.5	90
12	200	90	3.5	49	10"	200	3.5	108
					12"	200	3.5	129

Combined Vertical Offsets (Dip Under)						
Dip Number	Location	Diameter	Pressure Zone	Pressure	Depth	Restrained Length
1	Sta:19+00 Shaded Canyon	8"	2500	225	3.5'	118'
2	Sta:19+00 Shaded Canyon	8"	2370	200	3.5'	105'
3	Sta:28+60 Shaded Canyon	8"	2500	225	3.5'	118'
4	Sta:28+60 Shaded Canyon	10"	2370	200	3.5'	127'
5	Sta:28+60 Shaded Canyon	12"	2500	200	4.8'	127'
6	Sta:14+00 Warhol	8"	2370	200	3.5'	104'
7	Sta:15+40 Gaugin	8"	2370	200	3.5'	104'
8	Sta:16+00 Hopper	10"	2370	200	3.5'	126'
9	Sta:16+95 Benton	8"	2370	200	3.5'	104'
10	Sta:19+18 Duvet	6"	2370	200	3.5'	79'
11	Sta:19+18 Duvet	12"	2500	200	3.5'	151'
12	Sta:17+50 La Nain	8"	2500	225	3.5'	118'
13	Sta:17+55 La Nain	12"	2500	200	3.5'	151'
14	Sta:10+20 Natoire	8"	2500	200	3.5'	105'
15	Sta:10+20 Kandisky	8"	2500	225	4.7'	99'
16	Sta:10+20 Kandisky	12"	2500	200	3.5'	151'
17	Sta:10+27 Watteau	8"	2500	200	3.5'	105'
18	Sta:35+76 Shaded Canyon	8"	2500	200	3.5'	105'
19a	Sta:13+00 La Nain	8"	2500	200	3.5'	105'
19b	Sta:13+00 La Nain	6"	2500	200	3.5'	78'

PIPE JOINT DEFLECTION AND CURVED SEWERS

- CUTTING PIPE TO SHORTER LENGTHS TO INCREASE DEFLECTION NOT ALLOWED
- FULL STICKS OF PIPE ARE REQUIRED
- SPECIFY A FITTING IF DEFLECTION AT JOINT IS GREATER THAN 1 DEGREE FOR WATER LINES
- MUST PROVIDE MINIMUM RADIUS FOR ALL CURVED SEWERS

SEWER SLOPES AND DEPTHS

- ADHERE TO DCSWCS WHENEVER POSSIBLE
- CASE-BY-CASE BASIS:
 - LESS THAN MINIMUM REQUIRED COVER
 - LESS THAN MINIMUM REQUIRED SLOPES

HILLSIDE DEVELOPMENT CONSIDERATIONS

- **WATER –**

- MINIMUM REQUIRED PEAK HOUR RESIDUAL PRESSURE OF 40 PSI
- MAXIMUM ALLOWED STATIC PRESSURE IS 120 PSI

- **SEWER –**

- STEEP SLOPES – DESIRE IS TO MAINTAIN A CONSTANT SLOPE, RATHER THAN “STAIR-STEPPED”
- USE A “THROUGH” MANHOLE, WHERE SLOPE THROUGH MANHOLE MATCHES INCOMING AND OUTGOING PIPE SLOPES
- C-900 PVC PIPE RECOMMENDED
- WHEN DESIGNING ROADS, CONSIDER MAINTENANCE VEHICLE ACCESS (I.E. VACTOR TRUCKS)



ONSITE WATER AND SEWER IMPROVEMENTS

- WATER AND SEWER ONSITE MUST BE BUILT TO PUBLIC STANDARDS
 - BETTER FOR LONG-TERM MAINTENANCE FOR END-USER
- 

UTILITY PERMIT CONSIDERATIONS

- TENTATIVE MAP APPROVAL DOES NOT GUARANTEE SITE LAYOUT
- WILL-SERVE LETTERS ARE NOT PROVIDED UNTIL FINAL MAP MYLAR APPROVAL
- BUILDING PERMITS WILL NOT BE REVIEWED BY UTILITIES UNTIL CIVIL PLANS ARE APPROVED FOR CONSTRUCTION
- SEPTIC AND WELL LETTERS CANNOT BE PROVIDED UNTIL BUILDING PERMIT APPLICATION HAS BEEN RECEIVED

CAD LINEWORK SUBMITTAL

- AS OF APRIL 1, 2019, UTILITY SERVICES WILL NOT SIGN PROJECT MYLARS UNTIL SUBMITTAL IS COMPLETE
- GO TO [HTTP://COHDUS.COM](http://COHDUS.COM) TO CHECK AND SUBMIT

GIS CAD SUBMITTAL TRAINING FACILITATED BY

KALVAN HONE, PRINCIPAL GIS ANALYST, AT 1:30 PM

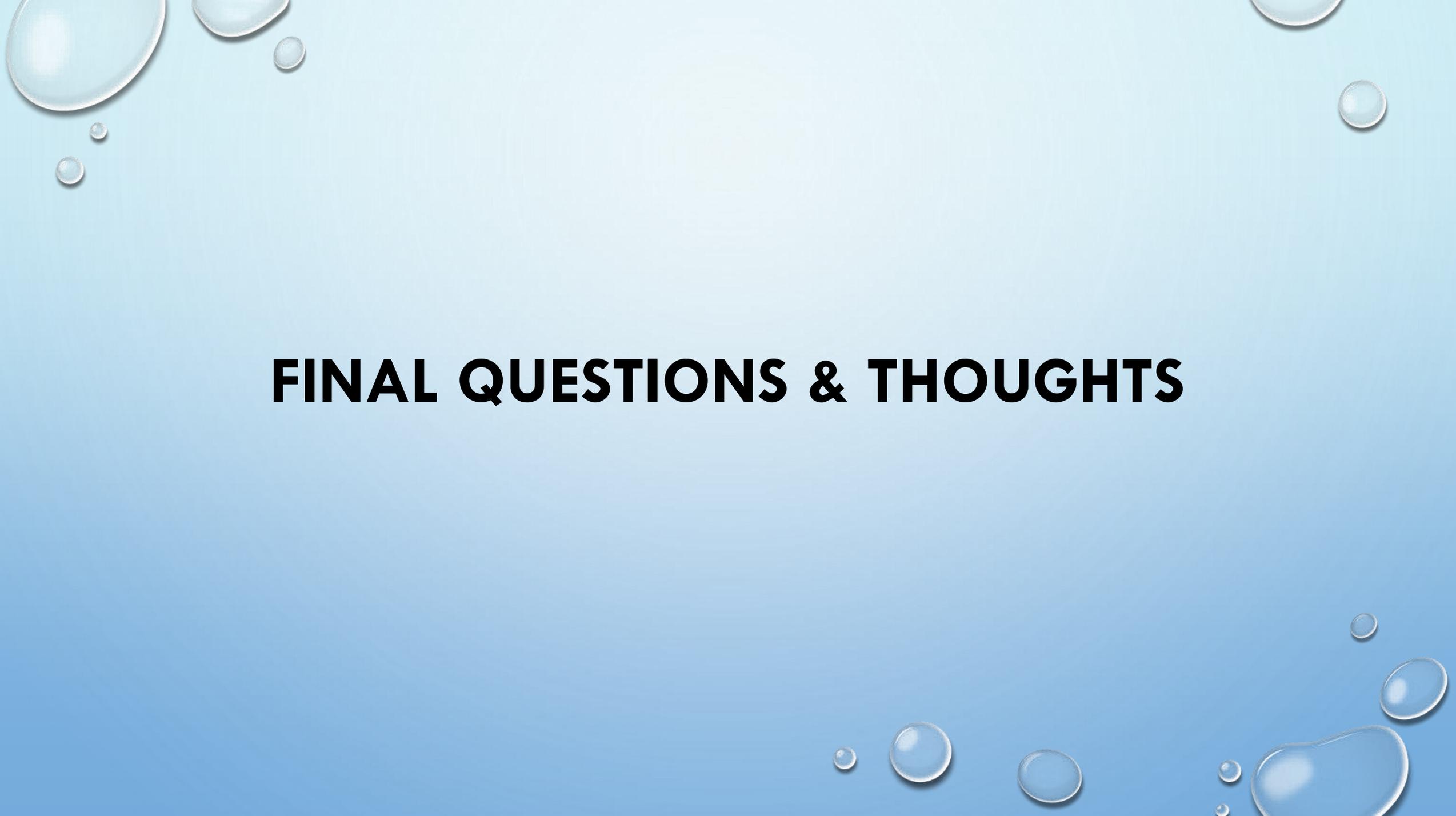
FOR MORE INFORMATION

- STANDARDS AND UTILITY INFORMATION BOXES CAN BE FOUND HERE:

[HTTPS://CITYOFHENDERSON.COM/UTILITY-SERVICES/UTILITY-SERVICES-CODE-GUIDELINES](https://cityofhenderson.com/utility-services/utility-services-code-guidelines)

- THE CIVIL SUBMITTAL CHECKLIST CAN BE FOUND HERE:

[HTTPS://CITYOFHENDERSON.COM/DEVELOPMENT-SERVICES-CENTER/PLAN-SUBMITTAL-CHECKLISTS](https://cityofhenderson.com/development-services-center/plan-submittal-checklists)

The background is a light blue gradient. There are several realistic water droplets of various sizes in the corners: top-left, top-right, and bottom-right. The text is centered in the middle of the page.

FINAL QUESTIONS & THOUGHTS



THANK YOU FOR ATTENDING!

PLEASE SUBMIT A QUESTION/COMMENT CARD AND TAKE A “HOW TO FIND US” SHEET
FOR CONTACT INFORMATION OR VISIT OUR WEBSITE:

WWW.CITYOFHENDERSON.COM/UTILITY-SERVICES/HOME