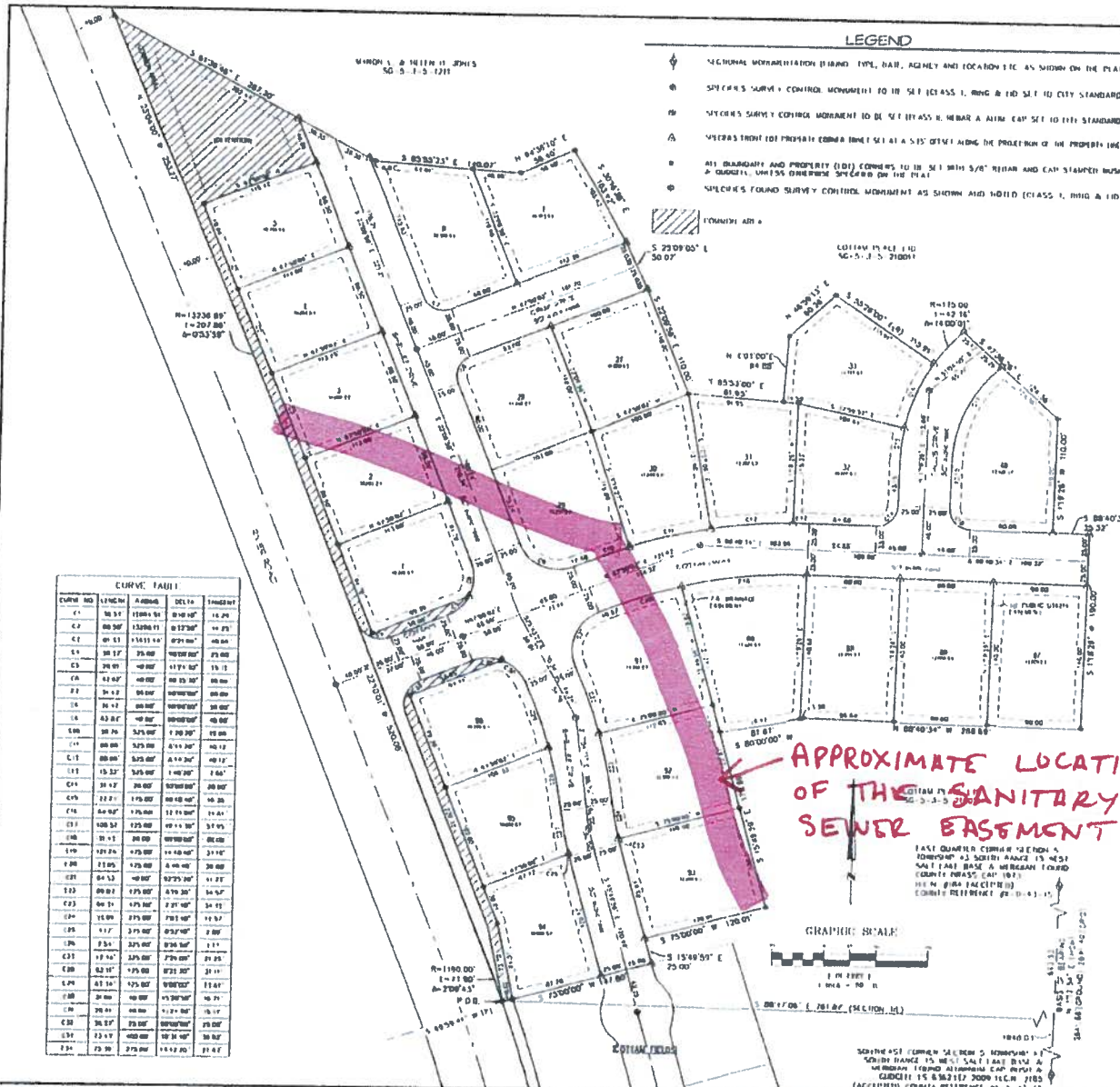
DRAFT

Agenda Item Number :

Request For Council Action

Date Submitted	2014-07-29 09:01:21
Applicant	Bob Hermandson - Bush & Gudgell
Quick Title	Public Hearing/Ordinance - Easement Vacation
Subject	Request to vacate an existing Sanitary Sewer Easement located on the east side of River Road at approximately 2000 South (new Cottam Cove Subdivision)
Discussion	This approval of this easement vacation needs to be heard before the approval of the Final Plat for Cottam Cove Phase 1
Cost	$0.00
City Manager Recommendation	
Action Taken	
Requested by	Todd Jacobsen
File Attachments	Cottam Cove Sewer Vacation.pdf

Approved by Legal Department?	Yes
Approved in Budget?	N/A **Amount:**
Additional Comments	For the July 31st meeting please.
Attachments	Cottam Cove Sewer Vacation.pdf



LEGEND

- SECTIONAL MONUMENTATION (BRAND TYPE, BAR, AGENCY AND LOCATION ETC. AS SHOWN ON THE PLAT)
- SPECIFIES SURVEY CONTROL MONUMENT TO BE SET (CLASS I, RING & LID SET TO CITY STANDARD)
- SPECIFIES SURVEY CONTROL MONUMENT TO BE SET (CLASS II, REBAR & ALUM CAP SET TO CITY STANDARD)
- SPECIFIES FRONT LOT PROPERTY CORNER (ONE SET AT A 5'15' OFFSET ALONG THE PROJECTION OF THE PROPERTY LINE)
- ALL BOUNDARY AND PROPERTY (LOT) CORNERS TO BE SET WITH 5/8" REBAR AND CAP STAMPED BUSH & GUDGELL, UNLESS OTHERWISE SPECIFIED ON THE PLAT
- SPECIFIES FOUND SURVEY CONTROL MONUMENT AS SHOWN AND HELD (CLASS I, RING & LID)
- FOUNDATION AREA

CURVE TABLE

CURVE NO.	LENGTH	RADIUS	DELTA	TANGENT
C1	16.54'	1180.00'	0°48'10"	16.54'
C2	88.90'	1180.00'	4°12'30"	44.47'
C3	91.53'	1163.00'	4°31'00"	45.80'
C4	38.12'	25.00'	87°37'00"	24.00'
C5	39.09'	40.00'	57°31'30"	21.31'
C6	42.00'	40.00'	60°15'30"	23.00'
C7	34.02'	25.00'	78°00'00"	21.00'
C8	34.02'	25.00'	78°00'00"	21.00'
C9	43.82'	40.00'	62°47'00"	24.00'
C10	20.26'	325.00'	3°34'20"	10.13'
C11	20.00'	325.00'	3°31'30"	10.00'
C12	20.00'	325.00'	3°31'30"	10.00'
C13	15.32'	325.00'	2°42'00"	7.66'
C14	30.12'	25.00'	69°00'00"	20.00'
C15	22.21'	175.00'	10°15'00"	11.20'
C16	54.92'	175.00'	17°57'00"	27.61'
C17	108.32'	175.00'	35°44'30"	57.95'
C18	31.42'	20.00'	90°00'00"	20.00'
C19	121.24'	175.00'	39°40'00"	63.18'
C20	12.05'	175.00'	4°00'00"	6.02'
C21	84.53'	40.00'	121°05'30"	68.21'
C22	89.01'	175.00'	29°08'30"	45.47'
C23	84.31'	175.00'	27°36'00"	43.01'
C24	15.09'	275.00'	3°08'00"	7.55'
C25	5.17'	275.00'	0°53'00"	2.59'
C26	9.54'	325.00'	1°41'00"	4.77'
C27	17.46'	325.00'	3°04'00"	8.73'
C28	62.15'	175.00'	20°21'30"	31.41'
C29	67.16'	175.00'	22°00'00"	33.97'
C30	24.00'	40.00'	34°38'00"	12.37'
C31	29.41'	40.00'	42°14'00"	15.37'
C32	36.27'	25.00'	83°08'00"	22.50'
C33	23.47'	40.00'	33°36'00"	12.09'
C34	23.39'	275.00'	4°52'30"	11.69'

SURVEYOR'S CERTIFICATE

I, RODERIC B. HERMANDSON, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR, AND THAT I HOLD LICENSE NO. 6362132 AS PRESCRIBED UNDER THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY THAT BY AUTHORITY OF THE OWNER, I HAVE MADE A SURVEY OF THE TRACT OF LAND SHOWN ON THIS PLAT AND DESCRIBED BELOW, AND HAVE SUBDIVIDED SAID TRACT OF LAND INTO LOTS, PUBLIC STREETS, EASEMENTS AND COMMON AREA HEREAFTER TO BE KNOWN AS THE

COTTOM COVE PHASE 1

AND THAT THE SAME HAS BEEN CORRECTLY SURVEYED AND STAKED ON THE GROUND AS SHOWN ON THIS PLAT.

BOUNDARY DESCRIPTION

BEGINNING AT A POINT N 1°12'54" E 1948.01 FEET AND N 88°47'08" W 781.81 FEET FROM THE SOUTHEAST CORNER OF SECTION 5, TOWNSHIP 43 SOUTH, RANGE 15 WEST, SALT LAKE BASE AND MERIDIAN, SAID POINT ALSO BEING ON THE EAST RIGHT-OF-WAY LINE OF RIVER ROAD (AS DESCRIBED IN DOCUMENT NO. 00687242, BOOK 1381, PAGE 57 OF THE WASHINGTON COUNTY RECORDERS OFFICE), POINT IS ALSO THE NORTHWEST CORNER OF THE COTTAM FIELDS SUBDIVISION, RECORDED AND ON FILE AT THE WASHINGTON COUNTY RECORDERS OFFICE, STATE OF UTAH, AND RUNNING THENCE ALONG SAID RIGHT-OF-WAY LINE THE FOLLOWING FOUR (4) COURSES: NORTHWESTERLY ALONG THE ARC OF A 1190.00 FOOT RADIUS CURVE TO THE LEFT, WITH A RADIUS WHICH BEARS S 89°58'41" W A DISTANCE OF 44.90 FEET THROUGH A CENTRAL ANGLE OF 2°08'43"; THENCE N 22°18'01" W 520.00 FEET TO THE POINT OF A 11,236.00 FOOT RADIUS CURVE TO THE LEFT; THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE 207.88 FEET THROUGH A CENTRAL ANGLE OF 0°53'50"; THENCE N 23°04'00" W 95.27 FEET TO A POINT ON THE SOUTH BOUNDARY LINE OF PARCEL NO. SG-5-3-5-1211; THENCE ALONG SAID PARCEL THE FOLLOWING ONE (1) COURSE: S 81°36'48" E 187.20 FEET; THENCE S 85°55'13" E 140.07 FEET; THENCE N 87°18'10" E 34.40 FEET; THENCE S 30°18'38" E DEPARTING SAID PARCEL 103.42 FEET; THENCE S 25°08'05" E 50.07 FEET; THENCE S 22°08'58" E 110.00 FEET; THENCE S 85°53'00" E 91.93 FEET; THENCE N 4°01'00" E 84.88 FEET; THENCE N 48°38'15" E 50.28 FEET; THENCE S 55°26'00" E 115.01 FEET TO THE POINT OF A NON-TANGENT 170.00 FOOT RADIUS CURVE TO THE RIGHT WHICH RADIUS BEARS S 55°28'00" E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE 42.70 FEET THROUGH A CENTRAL ANGLE OF 14°00'00"; THENCE S 41°38'26" E 124.38 FEET; THENCE S 119°28" W 110.00 FEET; THENCE S 88°40'34" E 35.32 FEET; THENCE S 119°28" W 190.00 FEET; THENCE N 88°40'34" W 288.88 FEET; THENCE S 80°00'00" W 81.07 FEET; THENCE S 15°49'59" E 115.89 FEET; THENCE S 75°00'00" W 120.01 FEET; THENCE S 15°49'59" E 23.00 FEET; THENCE S 75°00'00" W 149.00 FEET TO THE POINT OF BEGINNING.

CONTAINS 9.617 ACRES

DATE
BUSH AND GUDGELL INC.

RODERIC B. HERMANDSON
REGISTERED LAND SURVEYOR
UTAH LICENSE NUMBER 6362132

OWNER'S DEDICATION

DO HEREBY DEDICATE TO THE COMMON USE OF THE _____ BUT NOT TO THE USE OF THE GENERAL PUBLIC, ALL COMMON AREAS AS SHOWN ON THIS PLAT, IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF DEDICATION OF SAID COMMON AREAS AS MORE FULLY PROVIDED IN THE "DEDICATION OF COVENANTS, CONDITIONS, AND RESTRICTIONS" APPLICABLE TO THIS AND _____ DATED _____. SAID DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS ARE HEREBY INCORPORATED AND MADE PART OF THIS PLAT. REFERENCE IS MADE TO SAID DECLARATION FOR DETAILS CONCERNING THE RIGHTS AND OBLIGATIONS OF PARTIES HAVING OR ACQUIRING INTEREST IN THIS DEVELOPMENT FOR GOOD AND VALUABLE CONSIDERATION RECEIVED, THE UNDERSIGNED OWNERS SHOWN ON THIS PLAT AS PUBLIC STREETS AND EASEMENTS OVER ON UNDER AND ACROSS ALL COMMON AREAS FOR THE INSTALLATION AND MAINTENANCE OF PUBLIC UTILITIES AND DRAINAGE. THE UNDERSIGNED OWNERS DO HEREBY WARRANT TO THE CITY OF ST. GEORGE AND ITS SUCCESSORS AND ASSIGNS, THE RIGHT TO USE ALL DEDICATIONS AND CONVEYANCES GRANTED HEREIN AGAINST THE CLAIMS OF ALL PERSONS.

CW ENTERPRISES, LLC
A UTAH LIMITED LIABILITY COMPANY

MANAGER/OWNER

LIMITED LIABILITY COMPANY ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____ } SS

ON THE _____ DAY OF _____, _____ TO _____ PERSONALLY APPEARED BEFORE ME, THE UNDERSIGNED NOTARY PUBLIC IN AND FOR SAID STATE AND COUNTY, _____ WHO BEING BY ME DULY SWORN, DID SAY THAT HE/SHE IS THE MANAGER/OWNER OF CW ENTERPRISES, LLC, A UTAH LIMITED LIABILITY COMPANY, AND THAT THE FOREGOING INSTRUMENT WAS SIGNED IN BEHALF OF SAID LIMITED LIABILITY COMPANY BEING AUTHORIZED AND EMPOWERED TO DO SO BY THE OPERATING AGREEMENT OF CW ENTERPRISES, LLC, AND HE/SHE DID FURTHER ACKNOWLEDGE TO ME THAT SAID LIMITED LIABILITY COMPANY EXECUTED THE SAME FOR THE USES AND PURPOSES STATED THEREIN.

NOTARY PUBLIC _____ COMMISSION NUMBER _____

NOTARY PUBLIC (FULL NAME) _____ MY COMMISSION EXPIRES _____
A NOTARY PUBLIC COMMISSIONED IN UTAH
STAMP IS NOT REQUIRED PER
UTAH CODE 19-1-18(6)

Cottam Cove
PHASE 1

LOCATED IN
NORTHEAST & SOUTHEAST 1/4 OF SECTION 5, TOWNSHIP 43 SOUTH, RANGE 15 WEST,
SALT LAKE BASE AND MERIDIAN

Tax ID# SG-5-3-5-1(ROD)

APPROVAL OF THE PLANNING AND ZONING OFFICIAL	ENGINEER'S APPROVAL	APPROVAL AS TO FORM	APPROVAL OF THE PLANNING COMMISSION	APPROVAL AND ACCEPTANCE BY THE CITY OF ST. GEORGE, UTAH	TREASURER APPROVAL	RECORDED NUMBER
I, PLANNING AND ZONING OFFICIAL FOR THE CITY OF ST. GEORGE HAVE THIS DAY OF _____ A.D. 20__ HEREBY THE ABOVE SUBDIVISION FINAL PLAT AND RECOMMENDED THE SAME FOR ACCEPTANCE BY THE CITY OF ST. GEORGE, UT	HAS BEEN REVIEWED AND IS APPROVED IN ACCORDANCE WITH THE INFORMATION ON FILE IN THIS OFFICE THIS _____ DAY OF _____ A.D. 20__ ENGINEER CITY OF ST. GEORGE	APPROVED AS TO FORM THIS DAY _____ DAY OF _____ A.D. 20__ DATE ATTORNEY CITY OF ST. GEORGE	ON THIS DAY OF _____ A.D. 20__ THE COMMISSION OF THE CITY OF ST. GEORGE HAVING REVIEWED THE ABOVE SUBDIVISION FINAL PLAT AND FOUND THEM TO BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE CITY'S PLANNING DEPARTMENT AND BY AUTHORITY OF SAID COMMISSION HEREBY APPROVE SAID SUBDIVISION FOR ACCEPTANCE BY THE CITY OF ST. GEORGE, UT. PLANNING COMMISSION CHAIRMAN CITY OF ST. GEORGE	AT A REGULAR MEETING OF THE CITY OF ST. GEORGE, UT. HAVE REVIEWED THE ABOVE SUBDIVISION FINAL PLAT AND BY AUTHORITY OF SAID CITY COUNCIL RECORD IN THE MINUTES OF THE MEETING OF THE _____ DAY OF _____ A.D. 20__ HEREBY ACCEPT SAID FINAL PLAT WITH THE DEDICATIONS AND DESIGNATED EASEMENTS SHOWN. MAYOR CITY OF ST. GEORGE / CITY RECORDER CITY OF ST. GEORGE	WASHINGTON COUNTY TREASURER, CERTIFIES ON THIS DAY OF _____ A.D. 20__ THAT ALL TAXES, SPECIAL ASSESSMENTS, AND FEES DUE AND OWING ON THIS SUBDIVISION FINAL PLAT HAVE BEEN PAID IN FULL. WASHINGTON COUNTY TREASURER	WASHINGTON COUNTY RECORDER

BUSH & GUDGELL, INC.
Engineers, Planners, Surveyors
86 S. Main, St. George
Phone (435) 673-3579 Fax (435) 673-4110

Drawn		Date 3-4-13
Checked		
Approved		
Scale	1"=100'	
Job No.	2013-0	

COTTOM COVE PHASE 1
NE & SE 1/4 OF SECTION 5, TOWNSHIP 43 SOUTH, RANGE 15 WEST
SALT LAKE BASE & MERIDIAN

SHEET 1 OF 2 SHEETS
JOB: 121160 TP

DRAFT

Agenda Item Number :

Request For Council Action

Date Submitted	2014-07-29 09:05:31
Applicant	Bob Hermandson - Bush & Gudgell
Quick Title	Final Plat - Cottam Cove Phase 1
Subject	Consider approval for the Final Plat of Cottam Cove Phase 1
Discussion	This item was recommended for approval by the Planning Commission on July 8, 2014. However, the Sanitary Sewer Easement needs to be approved before this Final Plat can be considered. Please see the attached document for more information.
Cost	$0.00
City Manager Recommendation	
Action Taken	
Requested by	Todd Jacobsen
File Attachments	Cottam Cove FP.pdf

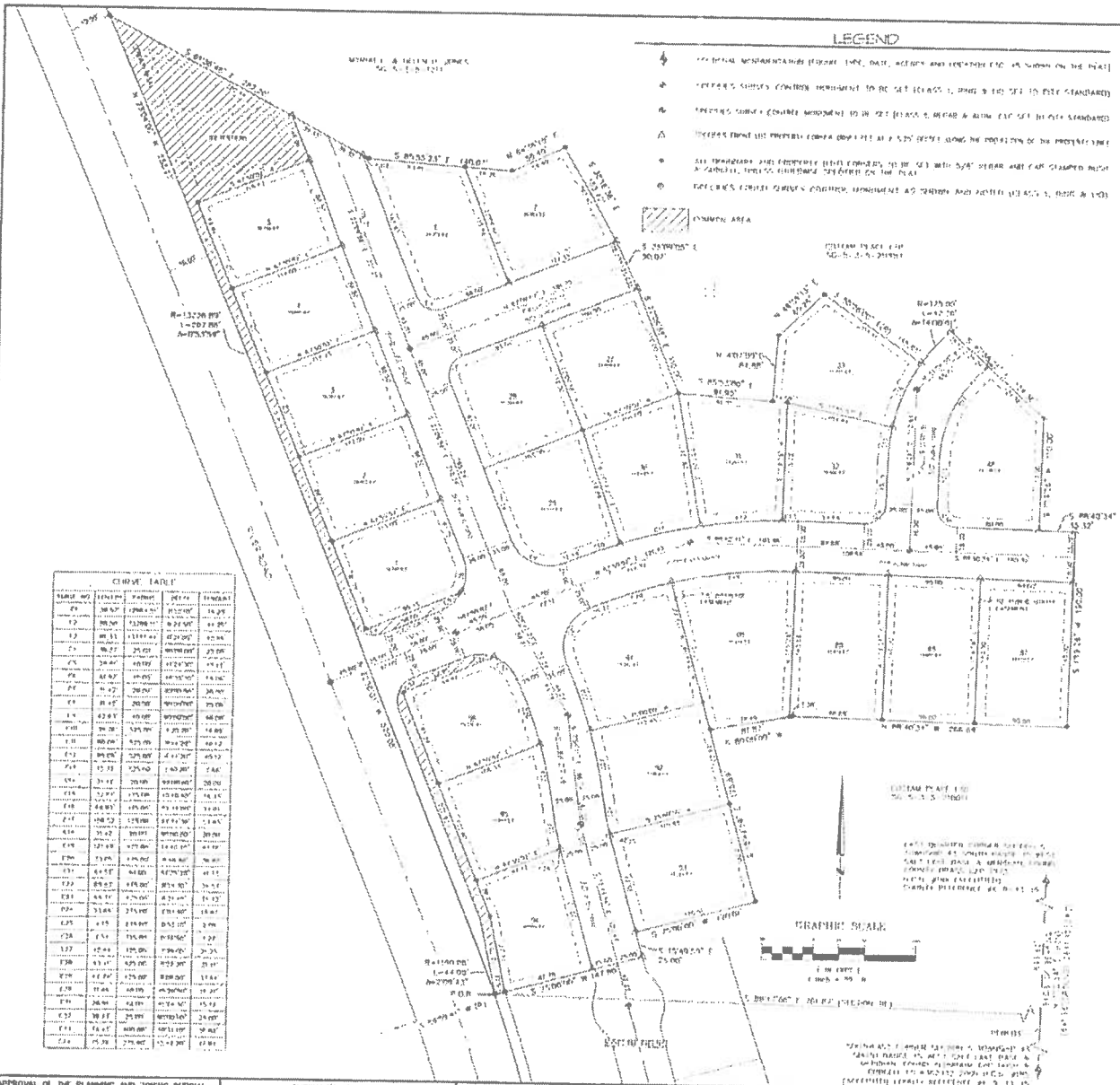
Approved by Legal Department?	Yes
Approved in Budget?	N/A **Amount:**
Additional Comments	July 31, 2014 meeting please.
Attachments	Cottam Cove FP.pdf

ITEM 1A
Final Plat

PLANNING COMMISSION AGENDA REPORT: **07/08/2014**

FINAL PLAT
Cottam Cove Phase 1
Case No. 2014-FP-031

Request:	Approval of a 25 Lot Residential Subdivision Final Plat
Representative:	Bob Hermandson, Bush and Gudgell 205 E. Tabernacle St., Suite 4 St. George, UT 84770
Property:	Located at approximately 2050 South & River Road (East side of River Road)
Zone:	R-1-10
Staff Comments:	All aspects of this Final Plat were carefully looked at and reviewed by the Community Development Department staff, (which includes New Development Division staff and Planning & Zoning staff) and Legal Department staff and it meets all of the preliminary plat conditions and approvals. This Final Plat is ready for Planning Commission's consideration for approval.



LEGEND

- FOUND MONUMENTATION (TYPE, SIZE, DATE, AGENCY AND DESCRIPTION ETC. AS SHOWN ON THE PLAT)
- SET 5/8" X 24" REBAR AND CAP STAMPED "BUSH & GUDGELL, INC." UNLESS OTHERWISE NOTED
- SET 5/8" X 24" REBAR AND CAP STAMPED "BUSH & GUDGELL, INC." UNLESS OTHERWISE NOTED
- SET NAIL AND SHINER IN TOP OF CURB AT THE EXTENSION OF THE PROPERTY LINE
- SET PROPERTY CORNER MONUMENTATION AS SHOWN ON THE PLAT
- SET CORNER MONUMENTATION AS SHOWN AS PARCEL CORNERS ON THE PLAT
- COMMON AREA

SURVEYOR'S CERTIFICATE

I, [illegible], DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR, AND THAT I HOLD LICENSE NO. [illegible] AS PRESCRIBED UNDER THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY THAT BY AUTHORITY OF THE OWNERS, I HAVE MADE A SURVEY OF THE TRACT OF LAND SHOWN ON THIS PLAT AND DESCRIBED BELOW, AND HAVE SUBDIVIDED SAID TRACT OF LAND INTO LOTS, PUBLIC STREETS, EASEMENTS AND COMMON AREA AS SHOWN ON THE PLAT AS SO

COTTOM COVE PHASE 1

AND THAT THE SAME HAS BEEN CORRECTLY SURVEYED AND STAKED ON THE GROUND AS SHOWN ON THIS PLAT.

BOUNDARY DESCRIPTION

BEGINNING AT A POINT N [illegible] FEET AND N [illegible] FEET FROM THE SOUTHEAST CORNER OF SECTION 5, TOWNSHIP 43 SOUTH, RANGE 15 WEST, SALT LAKE BASE AND MERIDIAN; [illegible]

[illegible]

OWNER'S DEDICATION

[illegible]

LIMITED LIABILITY COMPANY ACKNOWLEDGMENT

[illegible]

Cottam Cove
PHASE 1

LOCATED IN
NORTHEAST & SOUTHEAST 1/4 OF SECTION 5, TOWNSHIP 43 SOUTH, RANGE 15 WEST,
SALT LAKE BASE AND MERIDIAN

APPROVAL OF THE PLANNING AND ZONING OFFICIAL	ENGINEER'S APPROVAL	APPROVAL AS TO FORM	APPROVAL OF THE PLANNING COMMISSION	APPROVAL AND ACCEPTANCE BY THE CITY OF ST. GEORGE, UTAH	TREASURER APPROVAL	RECORDED NUMBER
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

BUSH & GUDGELL, INC.
ENGINEERS · PLANNERS · SURVEYORS

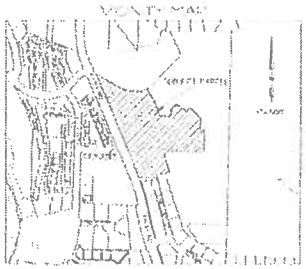
COTTOM COVE PHASE 1
NE & SE 1/4 OF SECTION 5, TOWNSHIP 43 S., RANGE 15 W.
SALT LAKE BASE AND MERIDIAN

SHEET 1 OF 2

GENERAL NOTES

[illegible]

VICINITY MAP



MORTGAGEE'S CONSENT TO RECORD

[illegible]

[illegible]

MORTGAGEE ACKNOWLEDGMENT

[illegible]

MORTGAGEE'S CONSENT TO RECORD

[illegible]

[illegible]

MORTGAGEE ACKNOWLEDGMENT

[illegible]

Cottam Cove
PHASE 1

LOCATION

NORTHEAST & SOUTHEAST 1/4 OF SECTION 5, TOWNSHIP 4 SOUTH, RANGE 15 WEST,
SALT LAKE BASE AND MERIDIAN

BUSH & GUDGELL, INC.
ENGINEERS · PLANNERS · SURVEYORS

COTTAM COVE - PHASE 1

SHEET
2
OF
2

Utah Associated Municipal Power Systems

St. George City

July 31, 2014

UAMPS
Utah Associated Municipal Power Systems

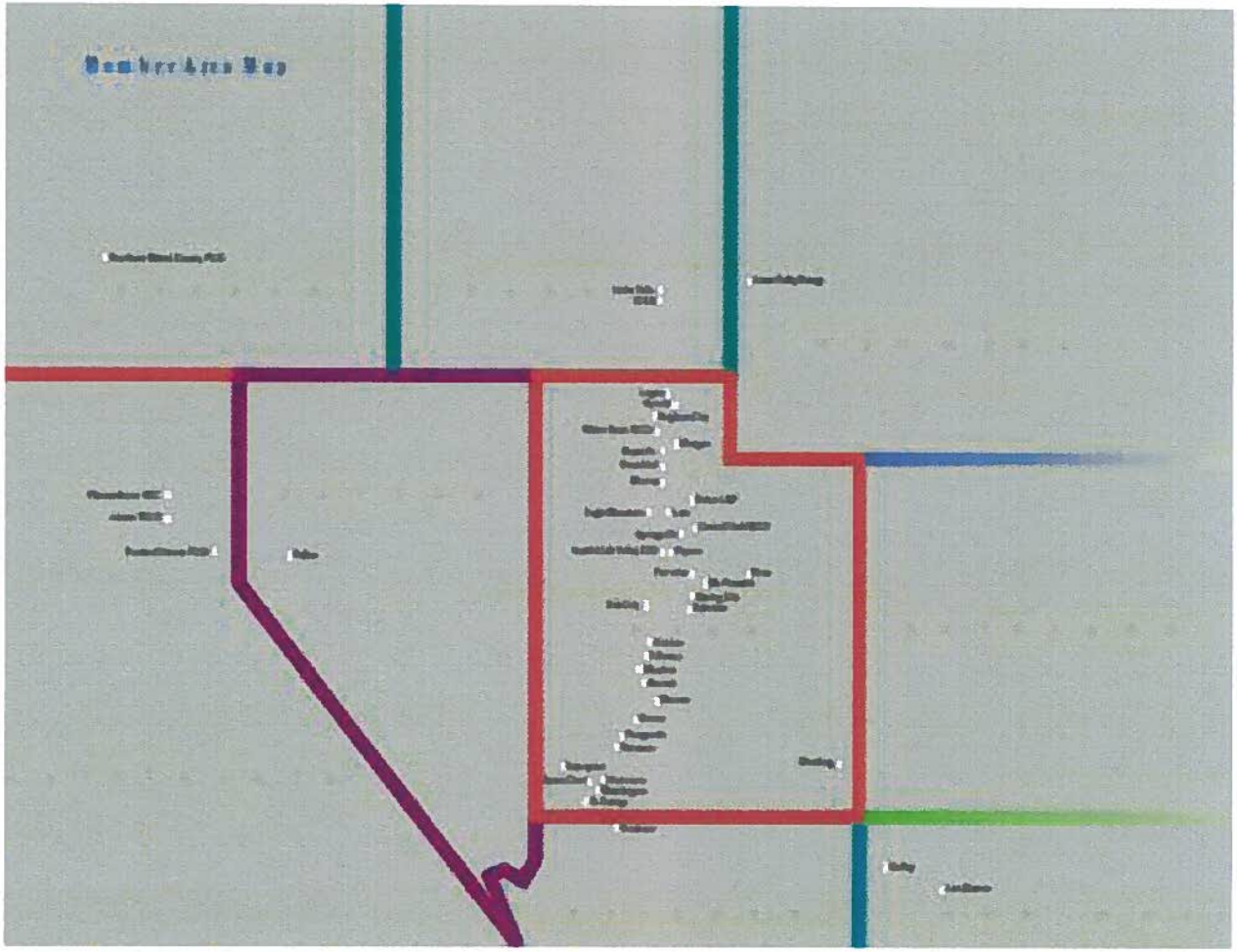
SMARTENERGY

UAMPS Overview

- An energy services interlocal that provides electric services on a non-profit basis to its members.
- Organized to develop, finance and operate projects for generation, transmission and energy services.
- Project-based organization which currently 16 separate projects.
- Not an "all requirements" provider which means members are not required to purchase their resource needs from UAMPS.
- Members determine whether to participate in projects based on their individual needs.
- Member autonomy.
- Projects provide services more economically and efficiently by providing economy of scale.
- Each project operates independent from one another under the UAMPS umbrella.

UAMPS Overview (cont.)

- 46 members.
- 8 states.
  - Arizona.
  - California.
  - Idaho.
  - Nevada.
  - New Mexico.
  - Oregon.
  - Utah.
  - Wyoming.



UAMPS Overview (cont.)

- UAMPS has undertaken and operates the following projects.

Power Supply

CRSP Project
Hunter Project**
San Juan Project*
Payson Power Project*
Firm Power Supply Project
IPP Project
Natural Gas Project
Horse Butte Wind Project*
Pool Project

Transmission

Central-St. George Project*
Craig-Mona Transmission Project**

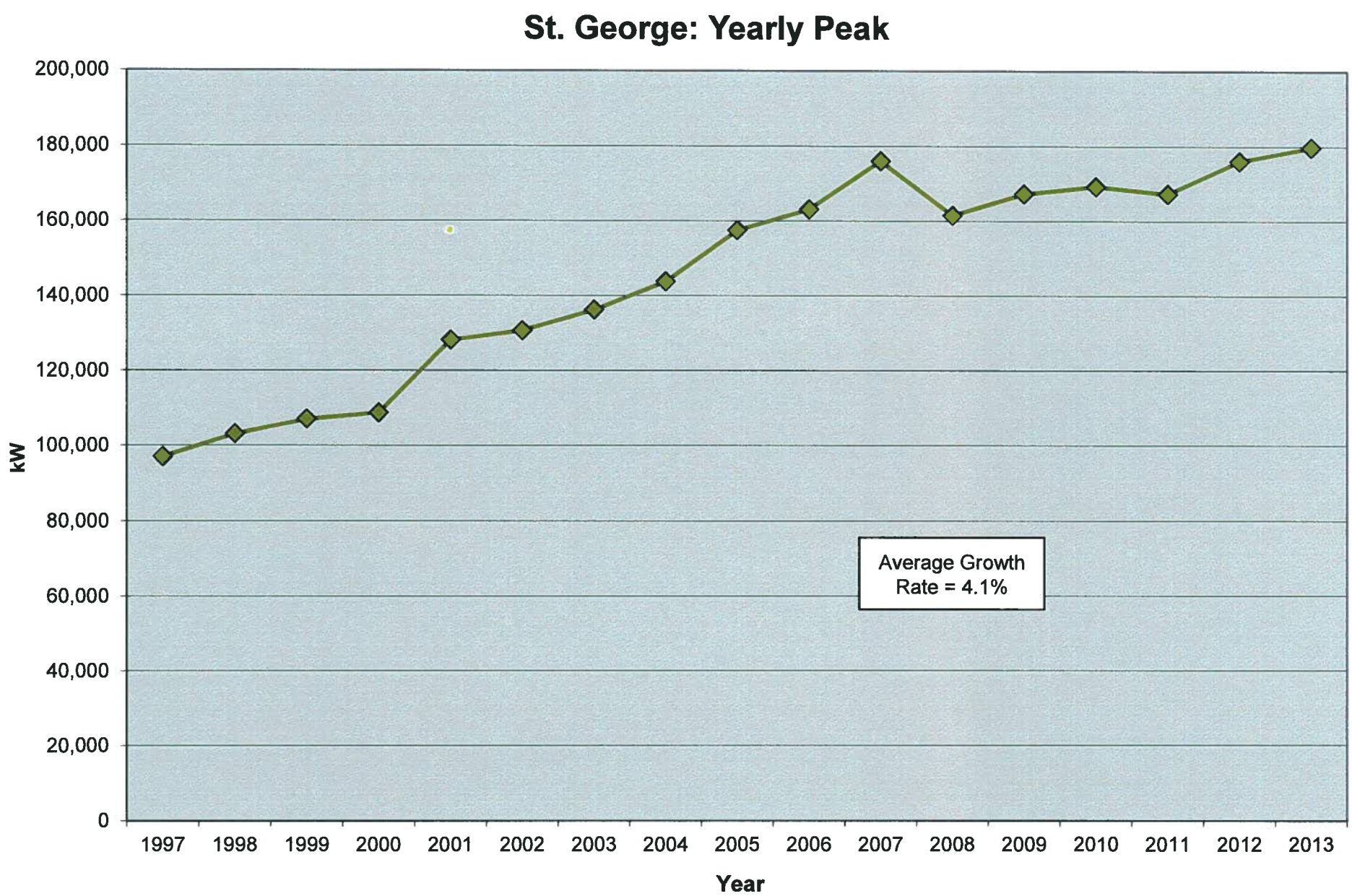
Service Projects

Resource Project
Member Services Project
Government & Public Affairs Project
Freedom Project (Initial Phase)
Kern River Project (Initial Phase)

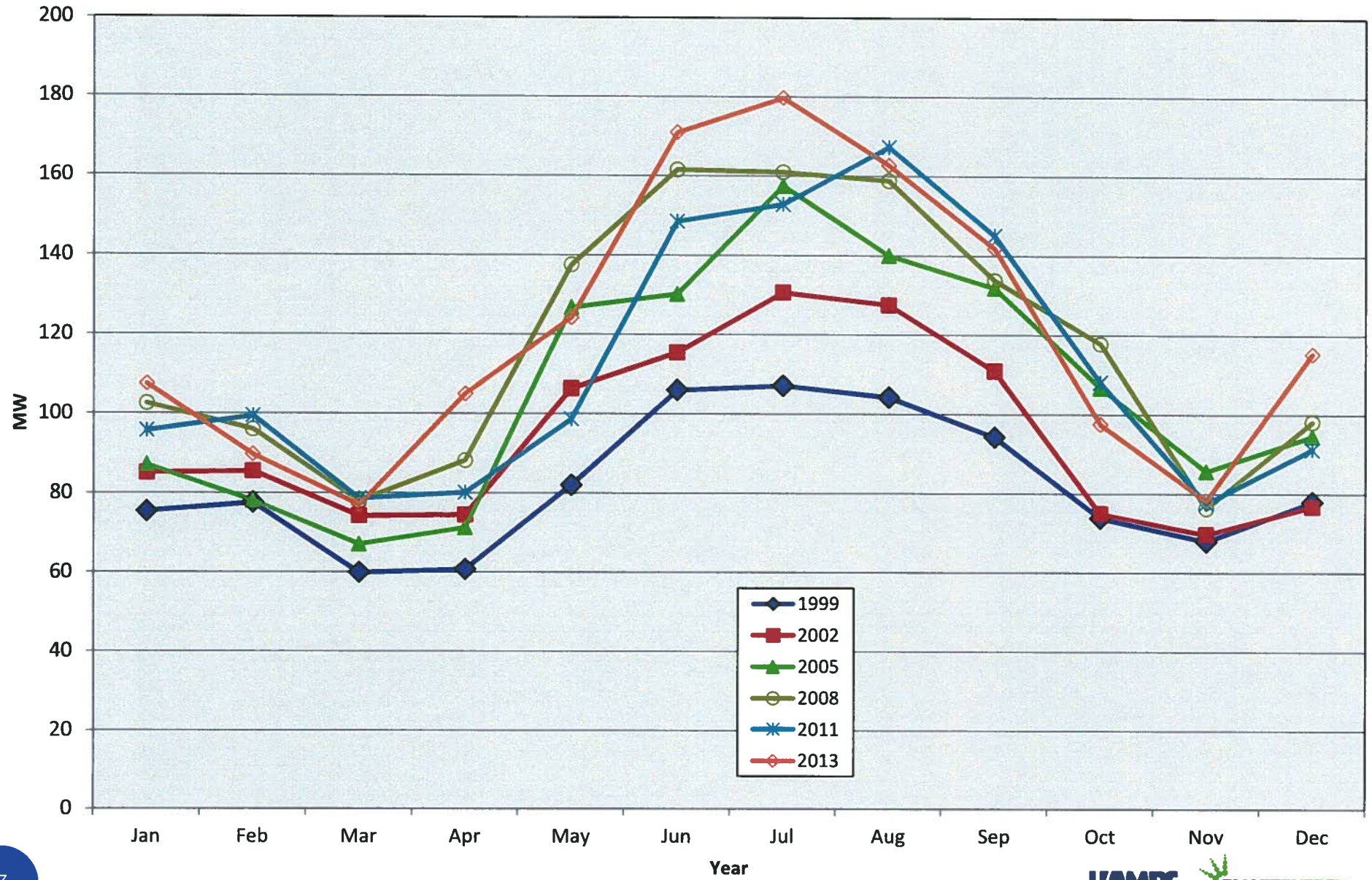
*Bonds-financed projects
**All bonds have been retired

UAMPS SMARTENERGY

Load and Resource Forecast


St. George: Yearly Peak
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
kW
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Year
Average Growth Rate = 4.1%

St. George
Monthly Peak Load



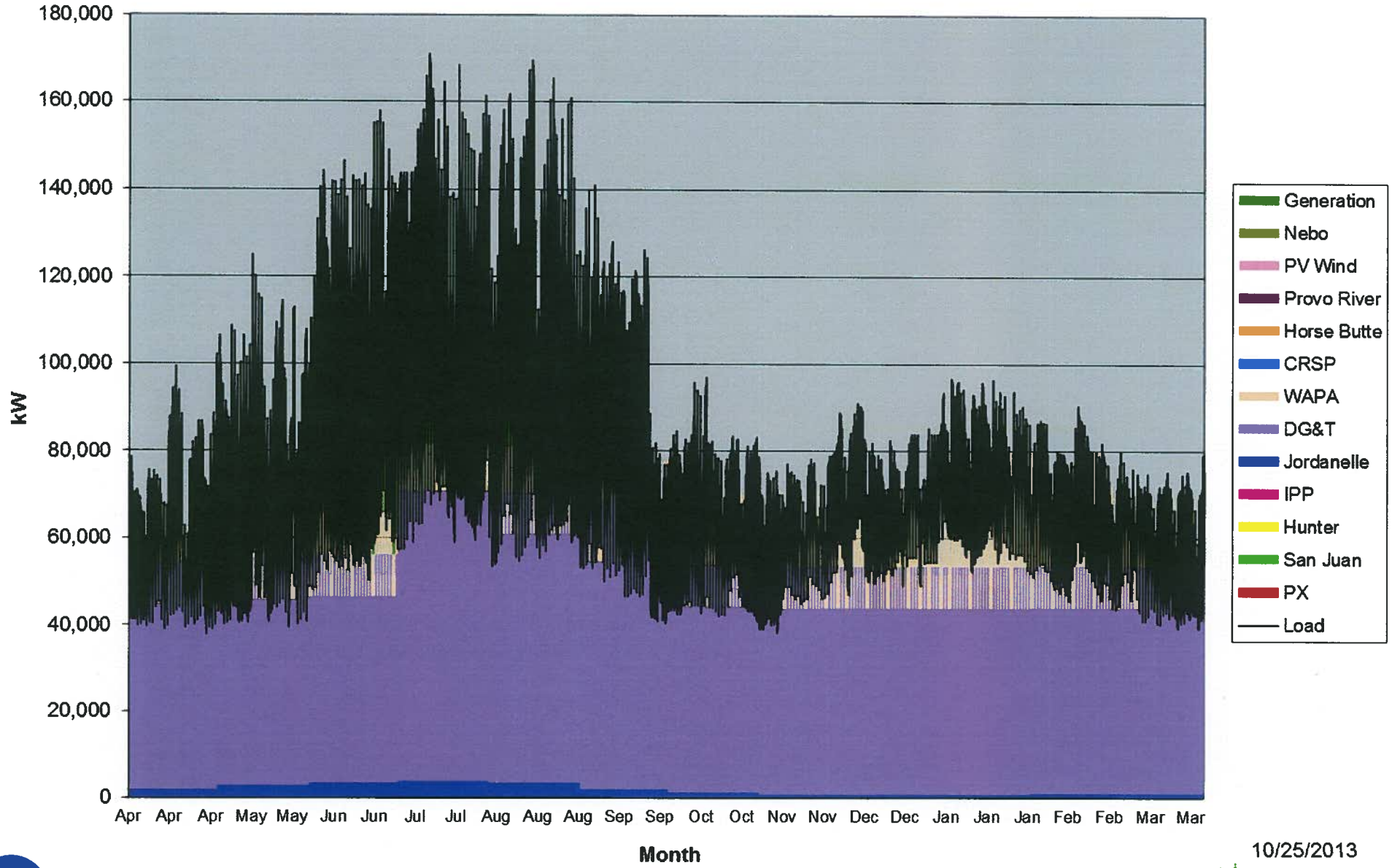
St. George

Forecasted Load to Resource Comparison and Shortage/Surplus Results

	Forecasted Load[3]		kW Average[1]				
			Forecasted	Forecasted	Shortage/(Surplus)[2]		
Month	kW Peak	kWh Energy	Load	Resources[4]	Flat	HLH	LLH
Apr-14	120,600	48,043,986	66,728	56,971	9,757	14,588	3,147
May-14	141,810	60,954,738	81,928	57,610	24,318	35,218	10,494
Jun-14	165,400	70,202,619	97,504	87,538	9,966	7,921	12,523
Jul-14	187,960	76,877,146	103,329	103,815	-486	982	-2,347
Aug-14	180,200	78,332,175	105,285	102,093	3,192	919	6,075
Sep-14	151,375	61,455,230	85,354	86,067	-713	-212	-1,339
Oct-14	122,790	47,136,223	63,355	60,569	2,786	5,449	-900
Nov-14	83,700	44,225,701	61,425	60,788	637	1,245	-58
Dec-14	97,000	48,278,277	64,890	62,059	2,831	3,242	2,311
Jan-15	110,470	53,190,680	71,493	61,936	9,557	9,148	10,075
Feb-15	94,000	43,385,993	64,562	61,671	2,891	2,904	2,874
Mar-15	81,460	45,739,345	61,478	60,391	1,086	2,993	-1,331
Year	187,960	677,822,113	77,377	71,864	5,513	7,113	3,470

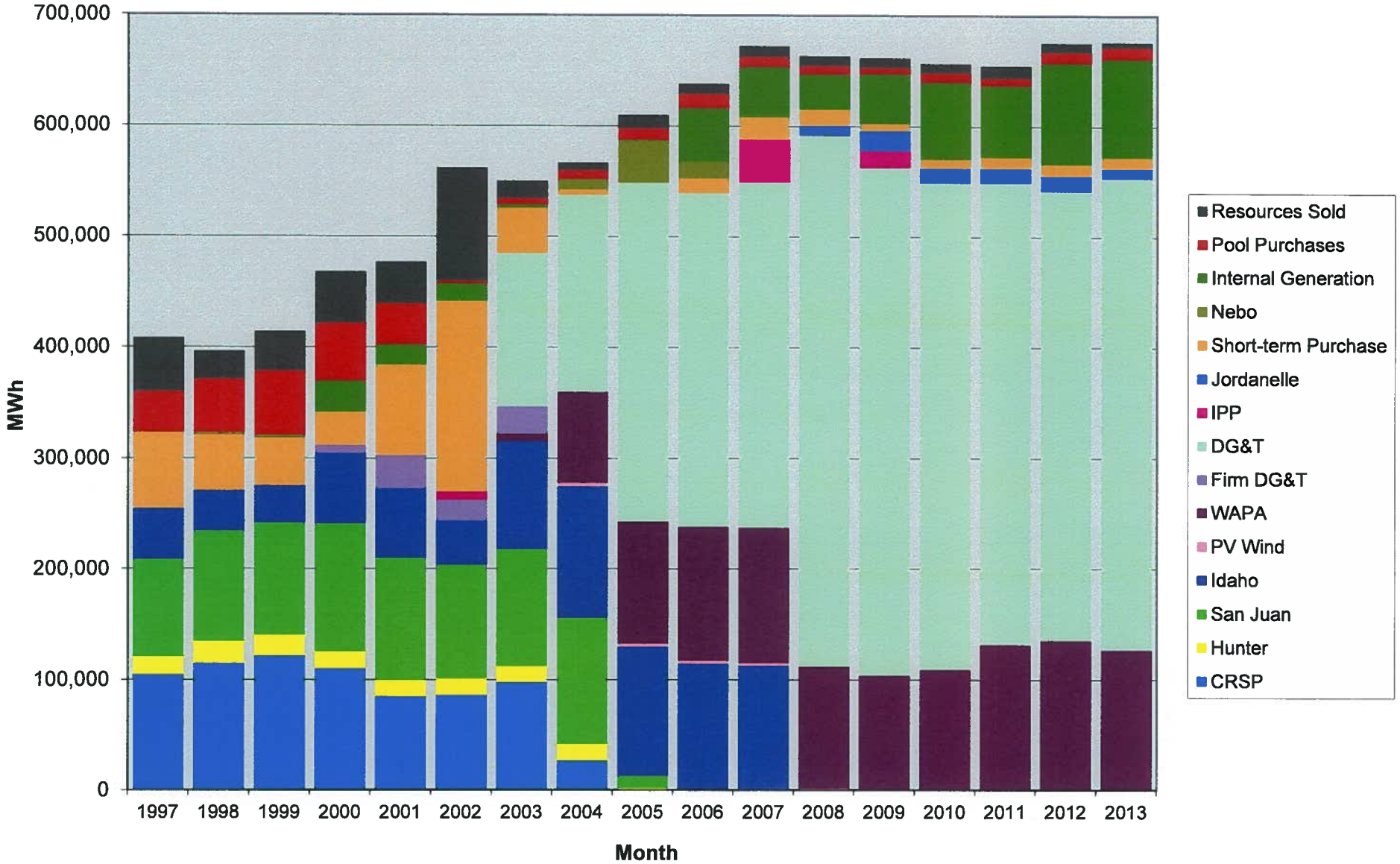
UAMPS SMARTENERGY

St. George Forecasted Load and Resources, April 2014 - March 2015

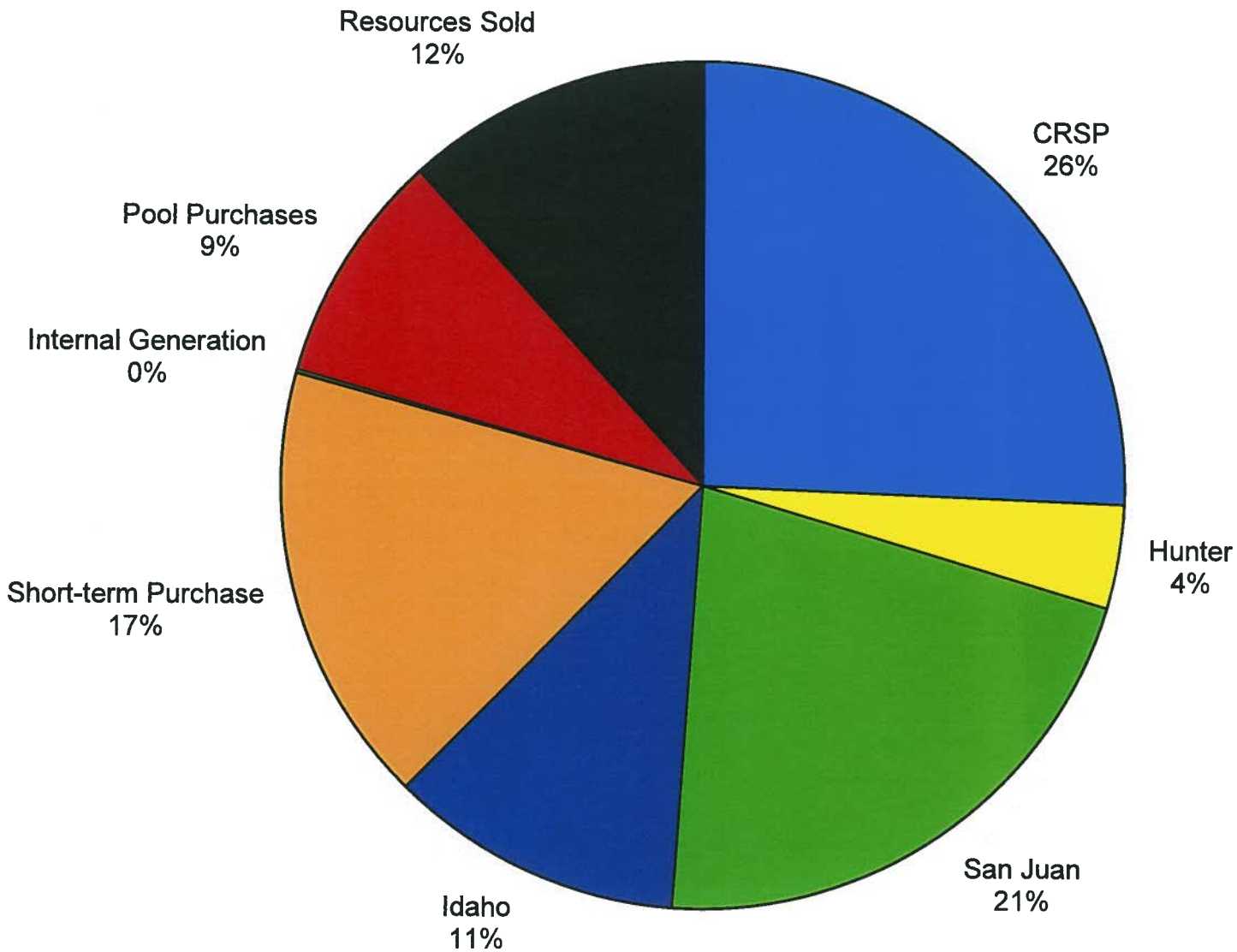


10/25/2013

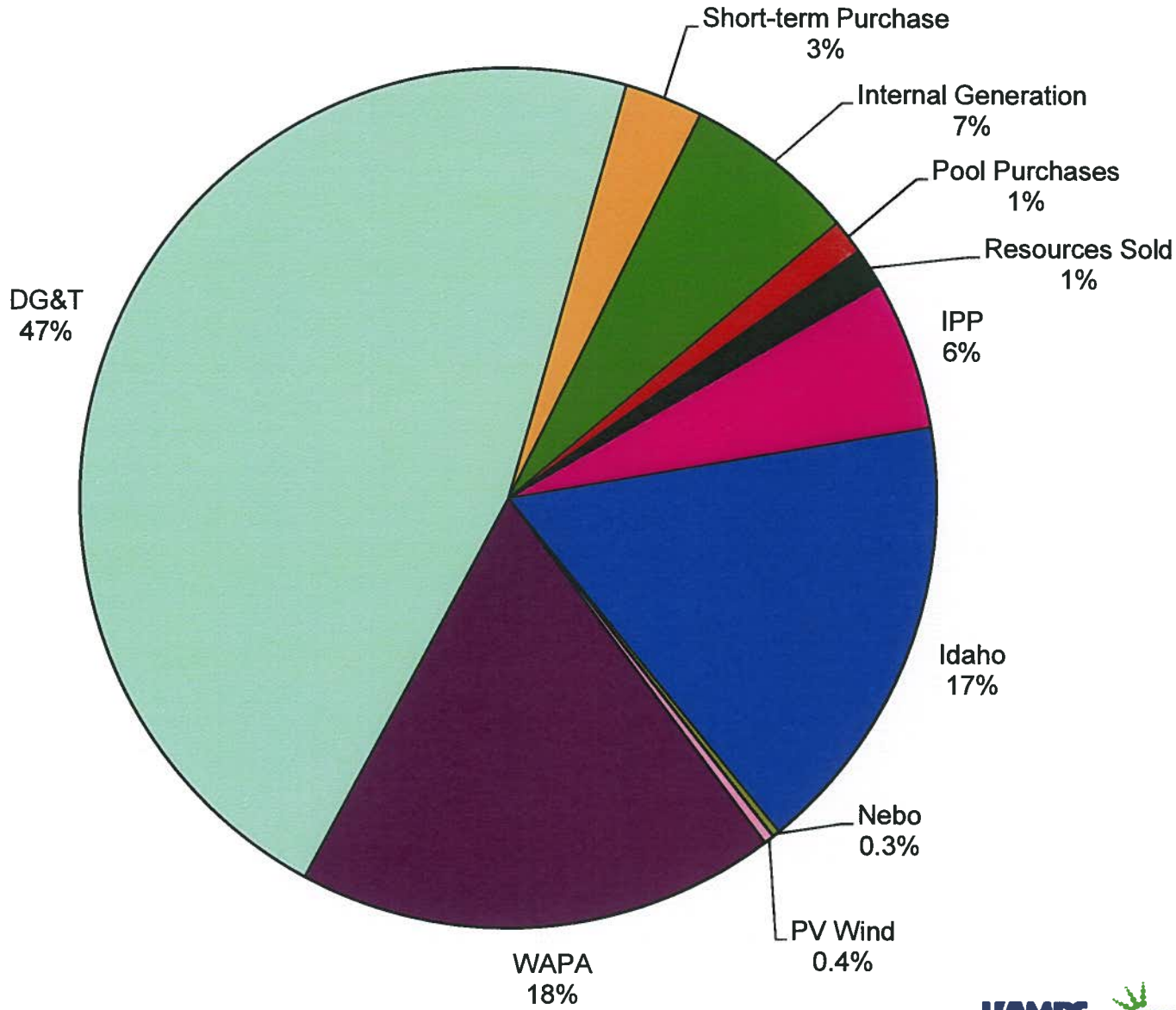
St. George: Yearly Resource Usage



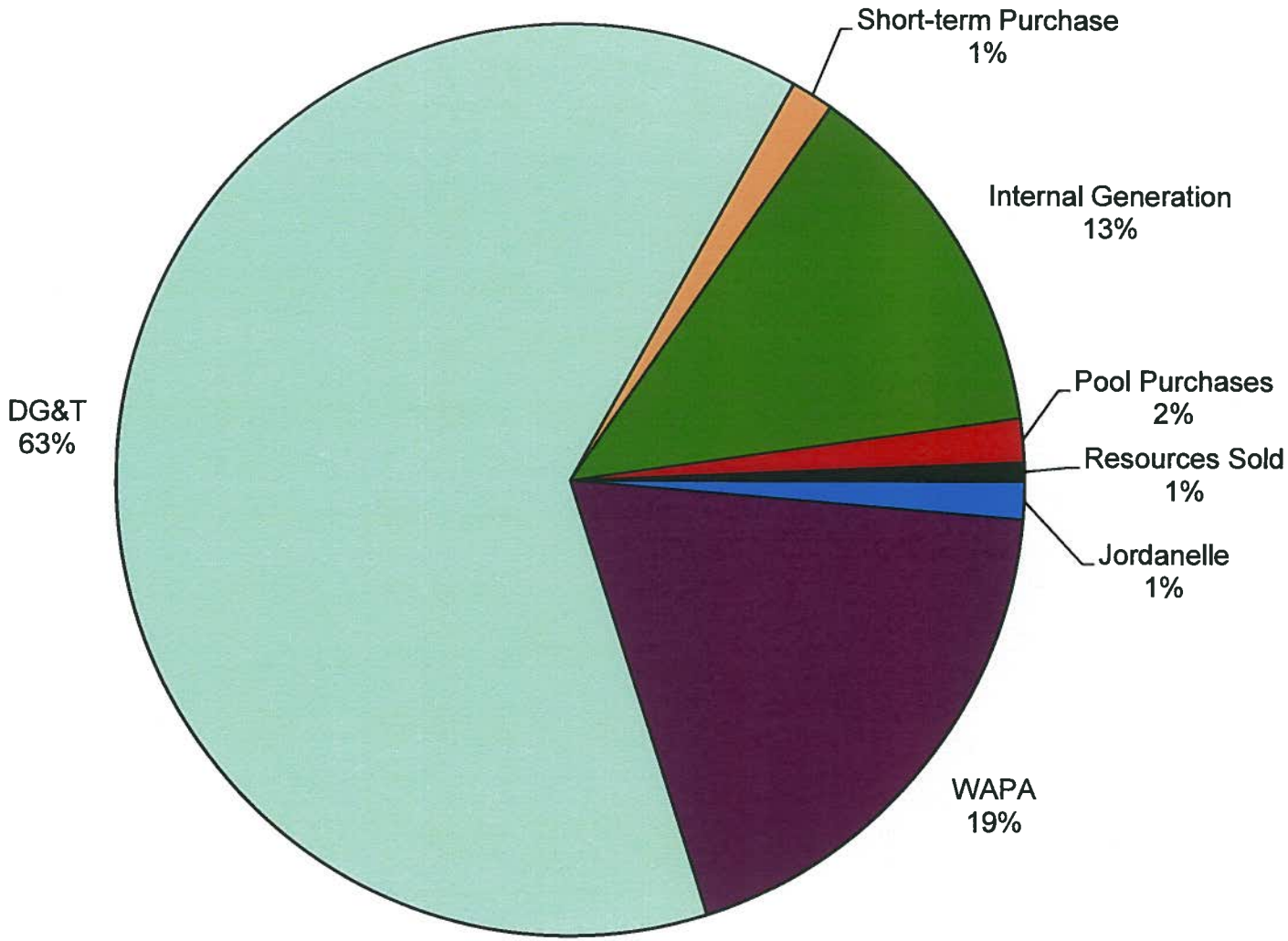
St. George: Resource Usage Breakdown - 1997



St. George: Resource Usage Breakdown - 2007



St. George: Resource Usage Breakdown - 2007



St. George: Yearly Dollars Billed through UAMPS

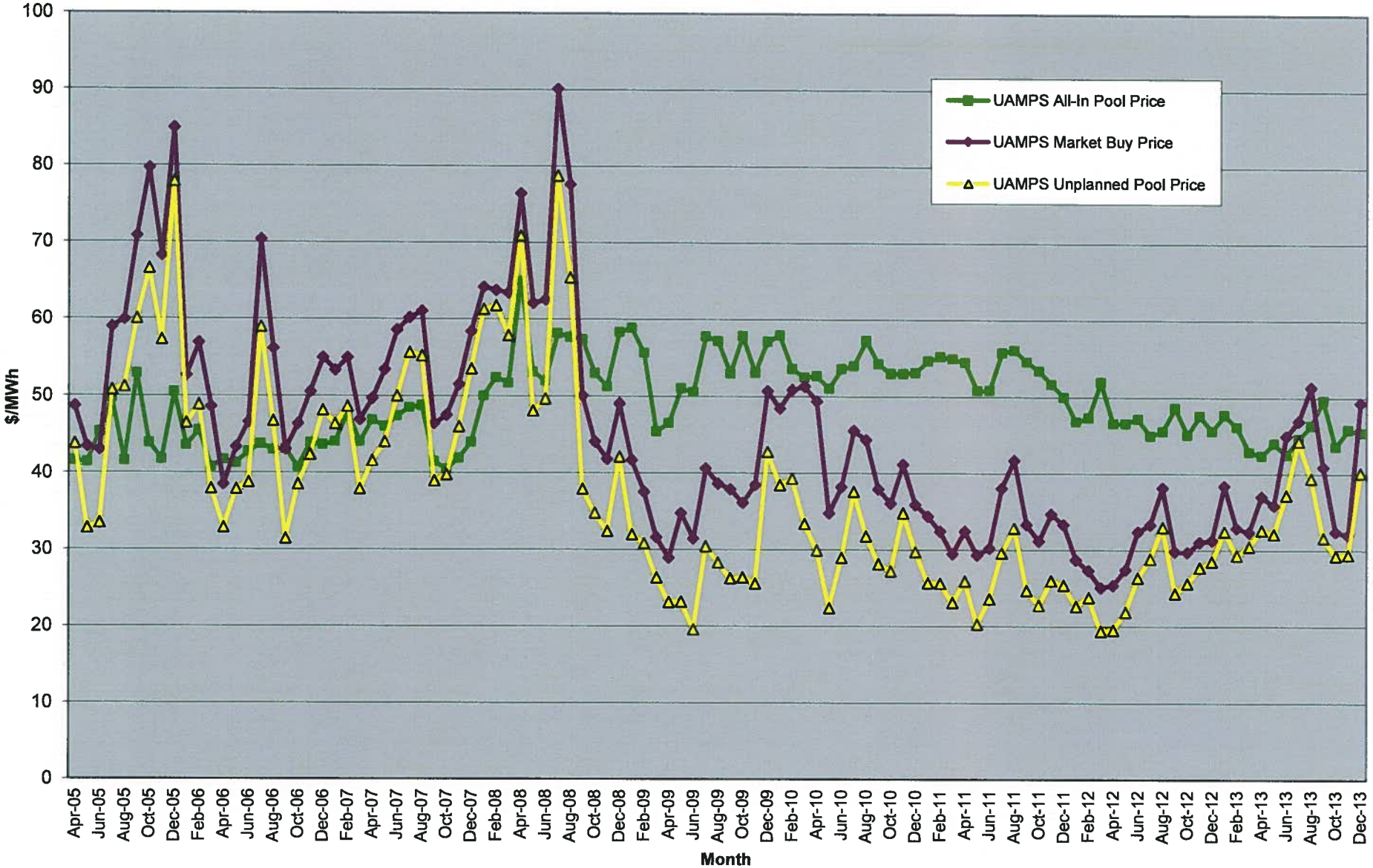
Pool Project

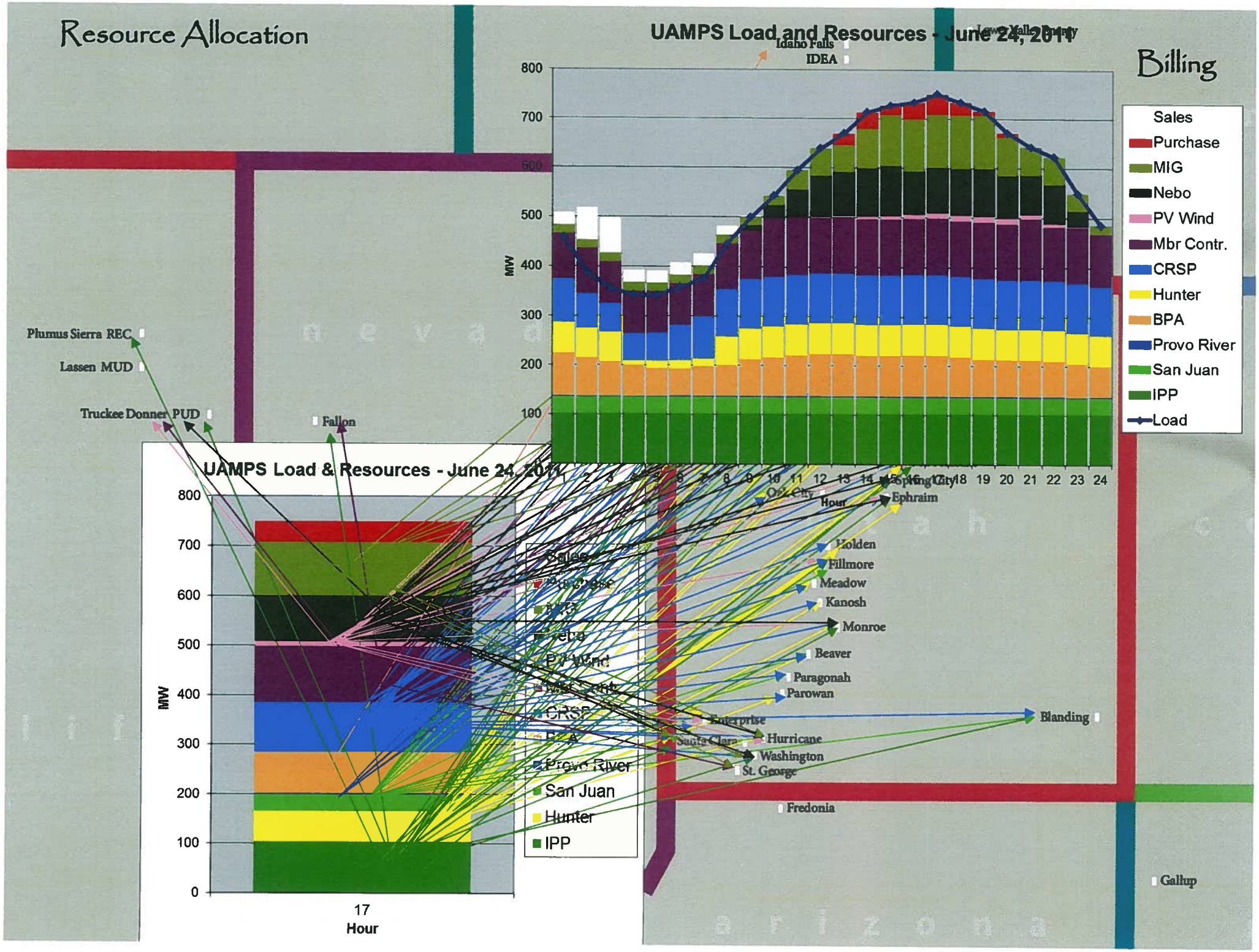
- UAMPS acts as an agent for members to:
  - Scheduling/Load Balancing.
  - Transmission.
  - Marketing.
  - Ancillary Services.
- Resources are allocated, based on Member's resource priority list, to Member's load.
- Each member receives its entitlement share of the projects energy on an hourly basis, then in turn is billed those energy costs, including transmission and scheduling.
- If the member's resource do not match their load, the additional resource deficits are provided by the Pool or any surplus resources are purchased by the Pool.

Pool Project (cont.)

- Four different Pool pricing mechanism for purchase/sales.
  - All-in cost Pool - Amounts of power that a member sales/purchases at the all-in cost of each UAMPS resource.
  - Planned Pool - Amounts of power that a member has sold/purchased on a take-or-pay basis at a negotiated price
  - Unplanned Pool - Amounts of power that a member sales/purchases at the hourly market price
  - Power Exchange - Members are able to enter into forward transactions through and electronic platform
- Members can view real time data for their load and projects via the internet.

UAMPS Monthly Average Flat Pool and Market Prices

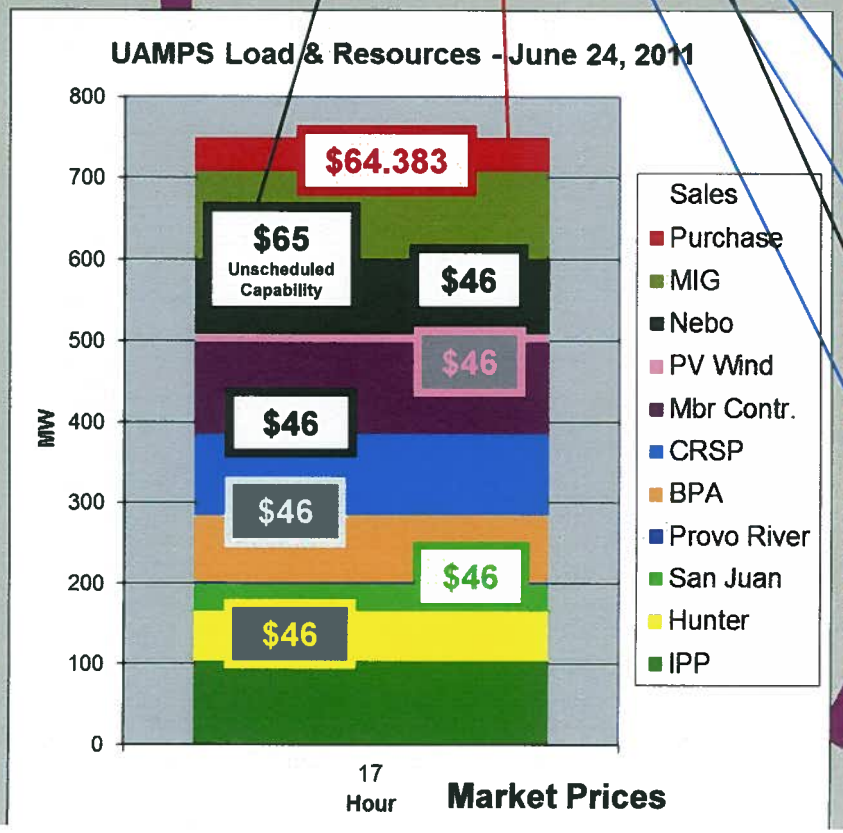



Resource Allocation
UAMPS Load and Resources - June 24, 2011
Billing
Idaho Falls
IDEA
MW
Hour
Sales
Purchase
MIG
Nebo
PV Wind
Mbr Contr.
CRSP
Hunter
BPA
Provo River
San Juan
IPP
Load
Plumus Sierra REC
Lassen MUD
Truckee Donner PUD
Fallon
UAMPS Load & Resources - June 24, 2011
Ephraim
Holden
Fillmore
Meadow
Kanosh
Monroe
Beaver
Paragonah
Parowan
Enterprise
Santa Clara
Hurricane
Washington
St. George
Blanding
Fredonia
Gallup
nevada
arizona

Sales to Unplanned Pool

(All-In Pool Net Shortage)

Weighted Average = $60.785



Lower Valley Energy

Billing

Idaho Falls

IDEA

Burley

United Electric Co-op

Raft River REC

Logan

Hyrum

Brigham City

Weber Basin WCD

Morgan

Kaysville

Bountiful

Murray

Heber L&P

Eagle Mountain

Lehi

Central Utah WCD

Springville

South Utah Valley ESD

Payson

Fairview

Price

Mt. Pleasant

Spring City

Oak City

Ephraim

Holden

Fillmore

Meadow

Kanosh

Monroe

Beaver

Paragonah

Parowan

Blanding

Enterprise

Santa Clara

Hurricane

Washington

St. George

Fredonia

Gallup

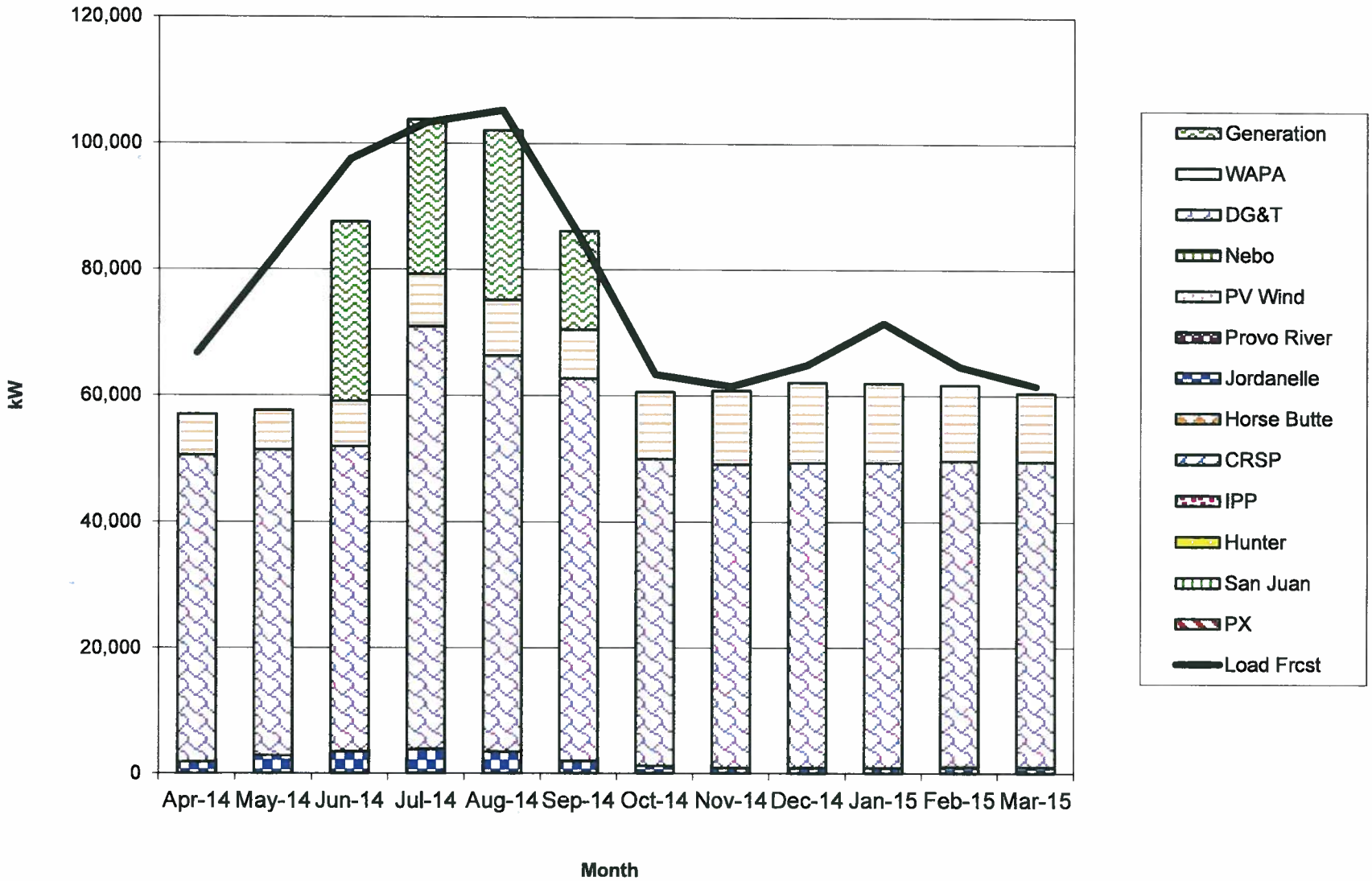
Plumas Sierra REC

Lassen MUD

Truckee Donner PUD

Fallon

St. George Forecasted Average Load and Average Resources



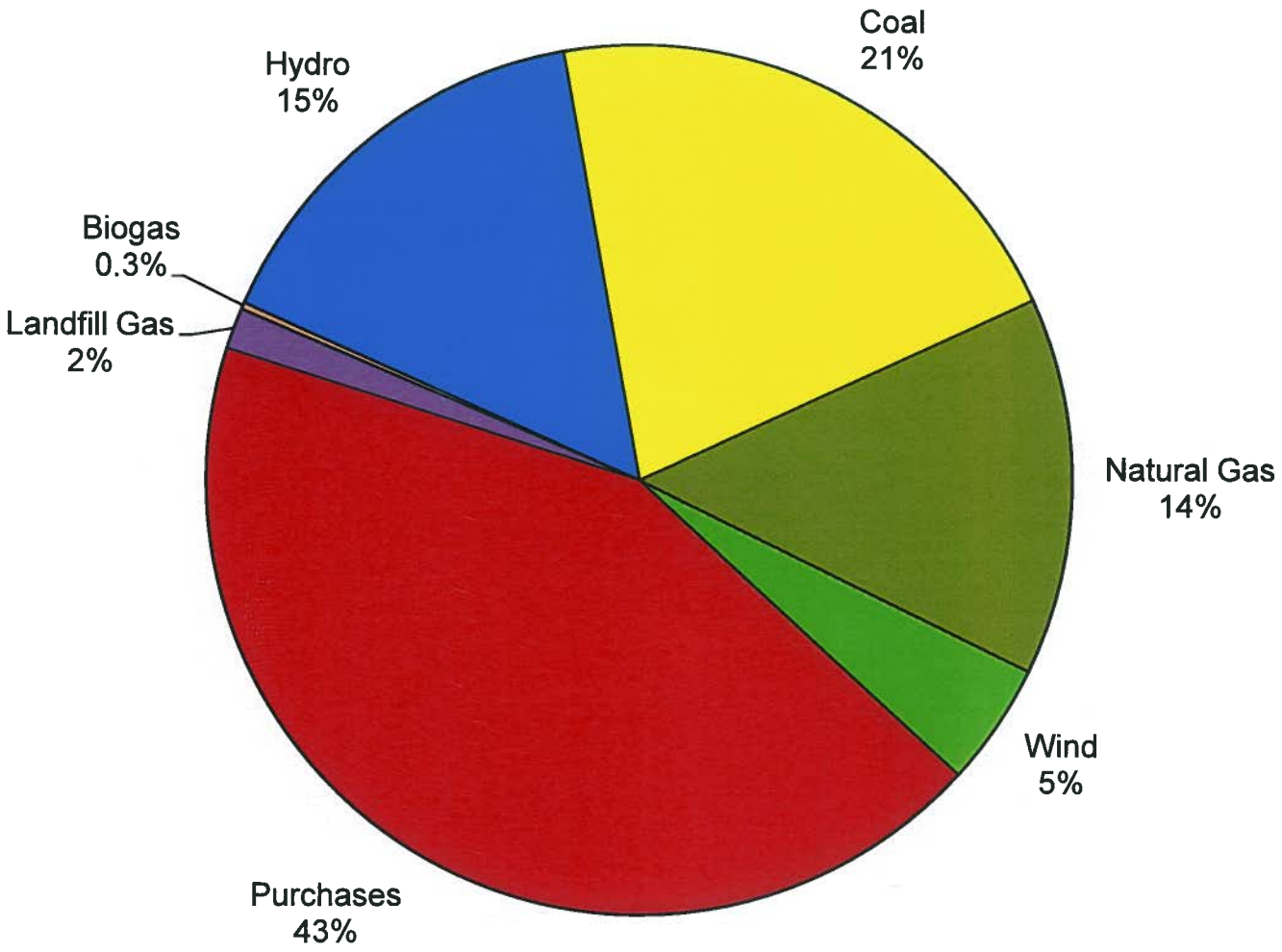
UAMPS SMARTENERGY

Environmental Regulation

Environmental Regulation

- President Obama's Climate Action Plan
  - Coal- Greenhouse legislation.
    - New Coal Plants.
      - 1,000 pounds C02 per megawatt hour.
      - Carbon Capture and Sequestration.
    - Existing Coal Plants.
      - New rules released 111B
      - Age of the fleet.
        - Evaluating Economics.
        - Operations after 2025.
  - Cannot stay with the status quo.
  - Natural gas is the obvious option but small modular reactors are also an option.

UAMPS: Resource Type - 2013



Small Modular Reactors

Features of SMRs

- Saleable – modules can be built as needed.
- Reasonable response to generation needs (some load following).
- Simpler construction.
- Simpler operations and maintenance.
- Unprecedented margins of safety.

Safe, Simple, Small, and Economical Nuclear Power

NuScale Power SMR

- UAMPS entered into a Teaming Agreement with NuScale and Energy Northwest to investigate the viability of developing a Small Modular Reactor (SMR) at the Idaho National Laboratory near Idaho Falls (the "preferred site").
  - Project WIN or Western Initiative for Nuclear.
- NuScale received a $217M Department of Energy (DOE) matching fund grant to support the accelerated development of NuScale's SMR technology.

Learn More visit www.nuscalepower.com

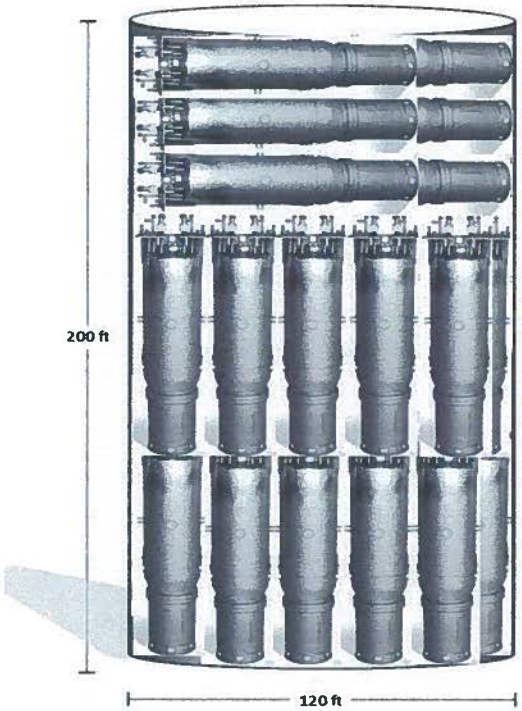
NuScale Power SMR (cont.)

- NuScale SMR consists of 12 – 45 MW reactors (540 MW total).
- Each reactor sits within a containment vessel measuring 91 feet tall x 15 feet in diameter.
- Each reactor containment vessel operates independently of the other reactors inside a water-filled pool that is built below grade.
- The ability to safely shut down and self-cool, indefinitely, with no operator action, AC or DC power, and no additional water.
- This simplicity allows the NuScale's SMR to be factory-built and transported to a site which make the plants faster to construct and less expensive to build and operate.

Size Comparison

Comparison size envelope of new nuclear plants currently under construction in the United States

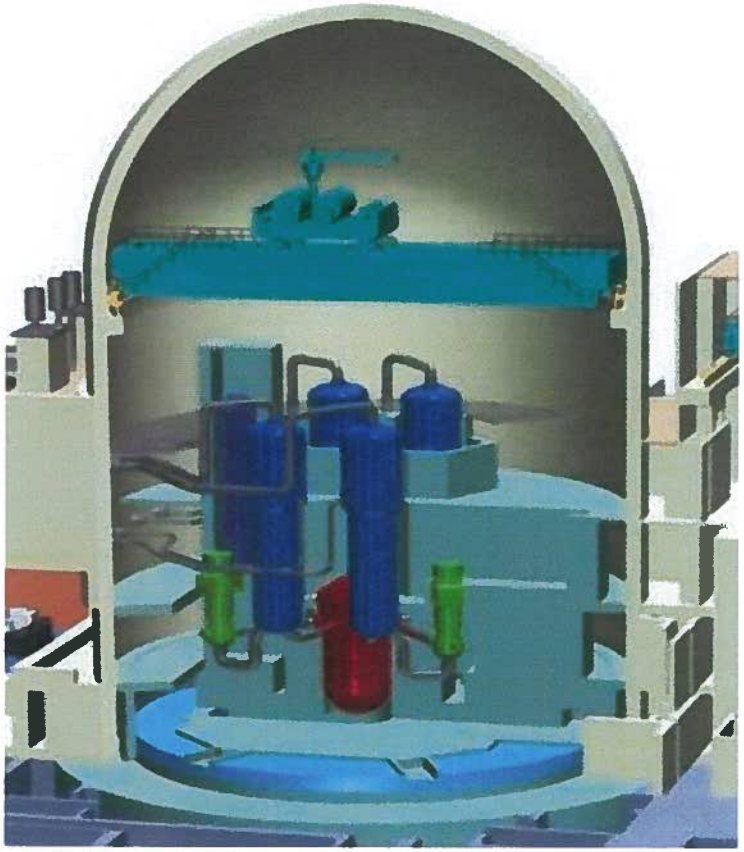
126 NuScale Power Modules



Containment

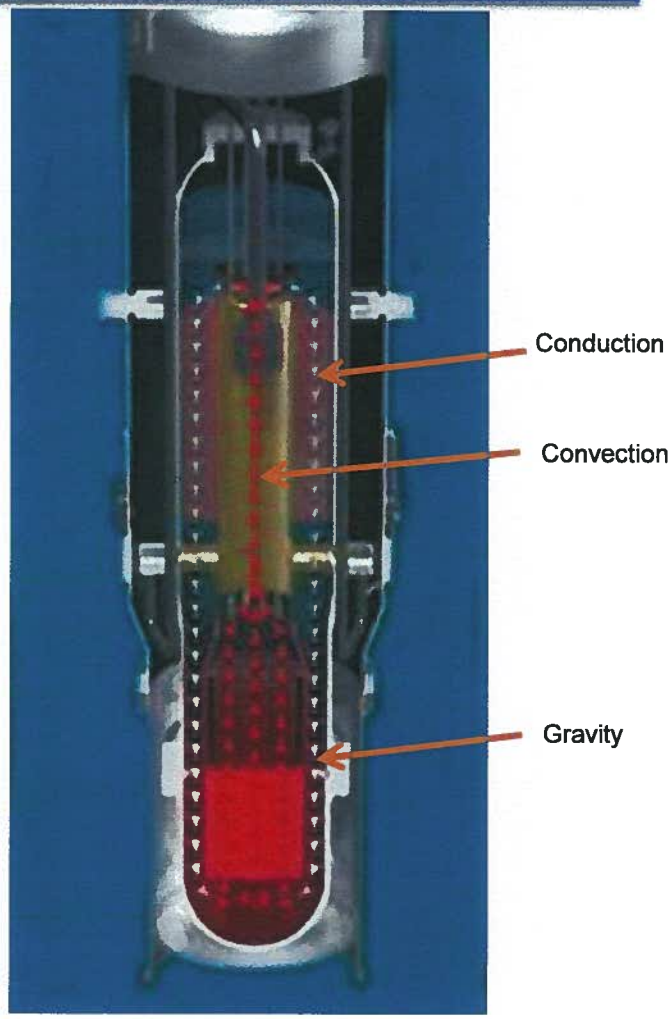
NuScale's combined containment vessel and reactor system

Typical Pressurized Water Reactor

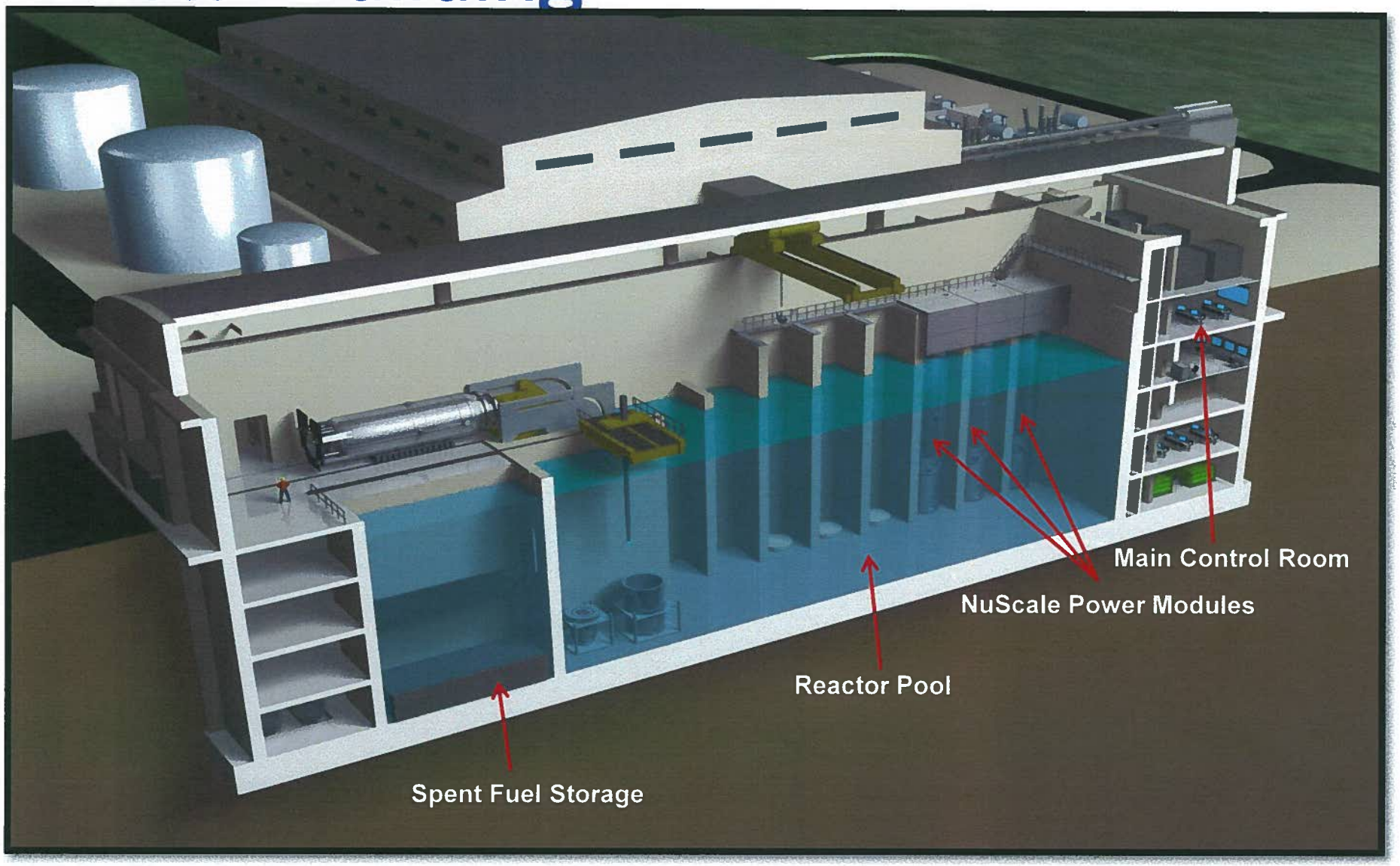


Coolant Flow Driven By Physics

- No pumps needed.
- Convection process used.

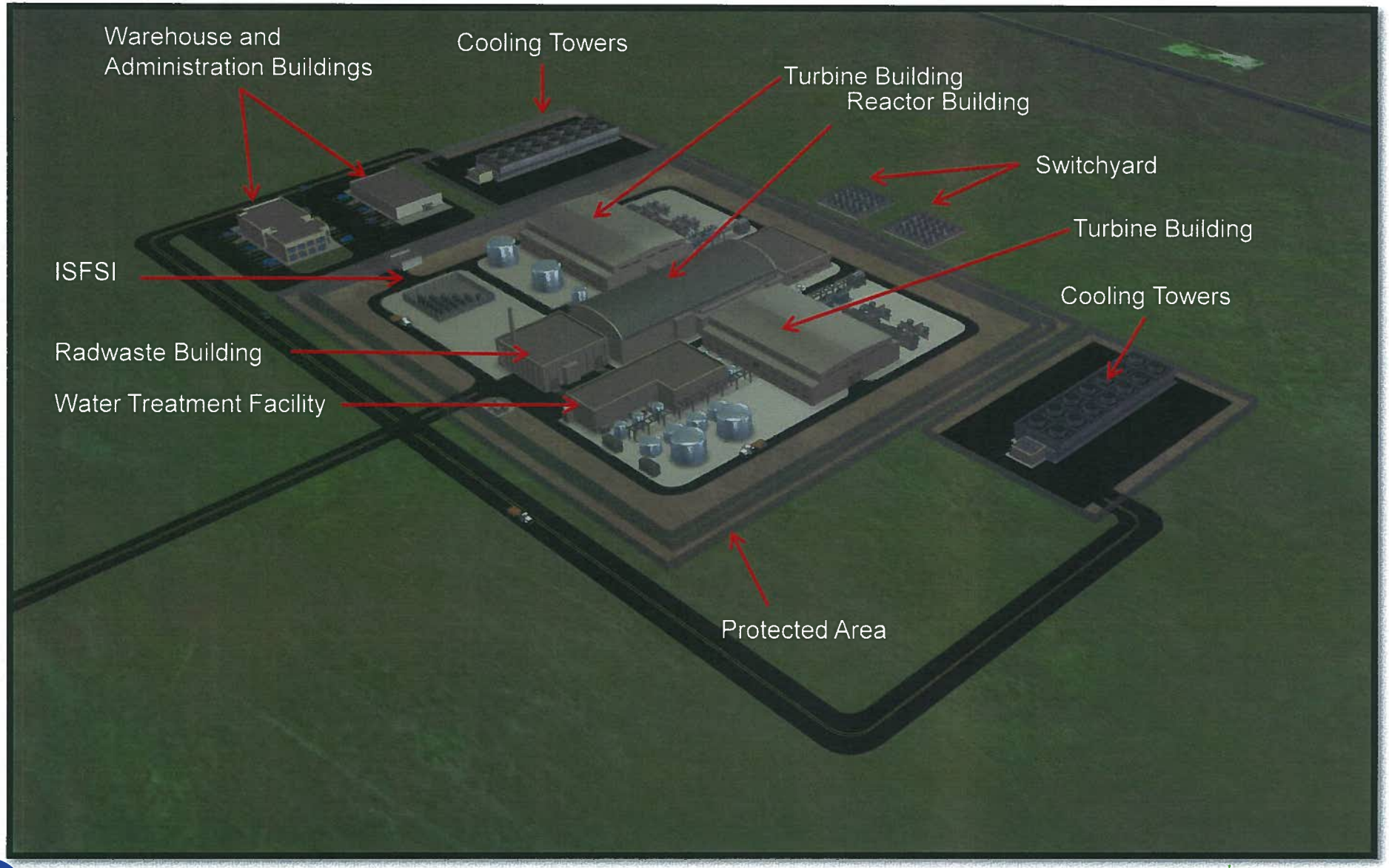


Reactor Building



UAMPS SMARTENERGY

Site Layout


Warehouse and
Administration Buildings
Cooling Towers
Turbine Building
Reactor Building
Switchyard
Turbine Building
ISFSI
Cooling Towers
Radwaste Building
Water Treatment Facility
Protected Area

Unprecedented Safety Features

- NuScale SMR can safely shut-down and self-cool, indefinitely, with
  - No Operator Action,
  - No AC or DC Power, or
  - No Additional Water,
- Safety valves align in the their safest configuration upon loss of all plant power.

Resource Project

- Currently, the SMR investigation is in the Resource Project.
- Allocation of costs are based on the average of the percentage for each of the four allocators for all Project participants and are updated annually during the budget process:
  1) number of Customers based on the latest Annual Report;
  2) equal share pro rata based on total amount of participants,
  3) pool usage based on the total pooling dollars for the latest fiscal year; and
  4) energy load based on the total energy served by UAMPS for the latest fiscal year.
- St. George's Project entitlement share using the above formula for fiscal year 2014-15 would be 8.9724%.

Resource Project (cont.)

- Upon completion of analysis and studies, the Resource Committee votes to solicit participation to form a project, each participant has the right to subscribe (to all, some or none) to at least their project allocation percentage. The participants also have the first right to take any unsubscribed allocation before non-Resource Project participants.
- The term of the Resource Agreement begins upon execution by the Participant and acceptance by the Resource Committee Project Management Committee and Board of Directors and extends through the earlier of: 1) the termination of the Resource Project, or 2) termination of the Agreement at the option of the Participant, which may be exercised by the Participant upon written notice to UAMPS, 30-days prior to the beginning of the budget year.

Questions?

ORDINANCE NO. 7-1-1993

AN ORDINANCE CREATING A SHADE TREE AND BEAUTIFICATION BOARD AND EMPOWERING IT TO PERFORM CERTAIN ACTS, MAKE RECOMMENDATIONS, AND OTHERWISE FOSTER TREE-PLANTING AND USE; PRESCRIBING ORGANIZATION OF THE BOARD; REGULATING CARE OF TREES ON CITY PROPERTY; PROVIDING ENFORCEMENT PROCEDURES AND SANCTIONS FOR VIOLATIONS.

BE IT ORDAINED by the City Council of the City of St. George, Utah, that Chapter 5 of Title 2 be amended as follows:

2-5-1: DEFINITIONS:

1. "Street trees" includes all trees, shrubs, bushes, and other woody vegetation on public lands lying within the right-of-way of all streets, avenues, or ways within the City.

2. "Park trees" means trees, shrubs, bushes and all other woody vegetation in public parks and areas owned by the City to which the public has free access as a park.

2-5-2: CREATED; ORGANIZATION: There is hereby created a Shade Tree and Beautification Board consisting of nine members, one being a City Councilmember, one being a full-time employee of the City, and all being residents of the City appointed by the Mayor with the approval of the City Council. They shall serve staggered terms of three years each, commencing on January 1 and terminating December 31 of the appropriate years. Appointments to fill unscheduled vacancies shall be for the balance of the unexpired term. Members of the Board shall serve without compensation. The Board shall elect such officers as it may deem necessary, from among its own members, for terms of one year, with eligibility for reelection. It shall adopt rules and regulations for the conduct of its business, subject to approval by the City Council.

2-5-3: POWERS AND DUTIES: The duties of the Shade Tree and Beautification Board shall include the following:

1. Recommend changes in City ordinances, policies and practices, including the Subdivision Ordinance, the Zoning Ordinance, and other City ordinances, that will encourage and enhance beautification of the St. George area;

2. Adopt and periodically review and update a Community Forestry Plan which designates the type, size, number and kind of street trees and park trees to be planted in the City. The Forestry Plan shall describe the scope and type of landscaping that may be required under

certain conditions and develop a review process to aid in implementation of the plan. A copy of the Forestry Plan as amended from time to time shall be available to the public at all times in the office of the City Recorder.

3. Disseminate to the public and the media information and recommendations concerning the selection, planting and maintenance of trees, and the improvement, landscaping and beautification of the City, both in public and private areas.

4. Assist the City Manager in pertinent public relations matters, including but not limited to, recommendations for programs such as Arbor Day, cleanup, or home and business beautification contests; recognize those residents and/or businesses which have made a significant contribution to the beautification of the neighborhood or surrounding area.

5. Promote community support of City parks and tree planting.

6. Encourage the protection of trees in the St. George area which are rare, endangered or of historical significance by seeking such designation under the Heritage Trees Act, Sec. 63-11-57 et seq., Utah Code Annotated, 1953, as amended, or the St. George Historical Preservation Ordinance, Chapter 24 of the Zoning Ordinance.

7. Hold public meetings at which trees, landscaping, and related subjects may be discussed by members of the Shade Tree and Beautification Board, officers and personnel of the City, and all others interested in the City's tree programs; and keep official minutes of all such meetings.

8. Have the authority to receive gifts or bequests from any person or any source, on behalf of and with the consent of the City Council, for building and maintaining a civic arboretum, or for other programs sponsored by the Shade Tree and Beautification Board. Such gifts or bequests shall be received by the City Treasurer and shall be earmarked for the purposes set out above.

9. Assist the City Forester in his various duties, as outlined below; review, endorse, modify, or reject standards and specifications developed by the City Forester together with rules for the regulation of shade trees and other matters related to the administration of this ordinance.

10. Make recommendations to the City Manager regarding budget needs.

11. Perform such other duties or reponsibilities, consistent with the terms of this ordinance, as may be assigned by the City Council or City Manager.

2-5-4: CITY FORESTER; DUTIES AND RESPONSIBILITIES: There is created the position of a City Forester with the following duties and responsibilities:

1. The City Forester shall be in charge of the forestry program of the City of St. George. He shall have the responsibility for implementation of forestry operations and work priorities in the carrying out of such operations. He shall be directly responsible to the Superintendent of Parks within the Leisure Services Dept. All departments of the City shall confirm through the City Forester that there has been compliance with the forestry program whenever such department takes or authorizes any type of action which may involve a forestry operation as defined in this Chapter.

2. The City Forester shall promulgate rules, regulations and specifications governing the planting, maintenance, fertilization, spraying, pruning and bracing of trees on City property to ensure proper planting, care and maintenance of said trees, together with the process to be followed before a tree may be removed. Such rules, regulations, and specifications shall first be reviewed and endorsed by the Shade Tree and Beautification Board, then submitted to the City Council with recommendation for adoption as the arboricultural regulations of the City. These arboricultural regulations may be modified, amended or extended from time to time upon recommendation of the Shade Tree and Beautification Board and approval of the City Council. The City Forester shall supervise the execution and enforcement of said rules, regulations and specifications as they pertain to street trees and park trees located on public property. A copy of the current rules and regulations as amended from time to time shall be available to the public at all times in the office of the City Recorder.

3. The City Forester or his designee shall authorize and inspect all work required in accordance with the provisions hereof. Work authorized and decisions made hereunder by the City Forester shall be submitted to and reviewed by the Shade Tree and Beautification Board whenever a request is made for such review by either a member of the Shade Tree and Beautification Board or by the occupier or owner of the property affected by such work or decision.

2-5-5: CITY FORESTER; AUTHORITY: The City Forester shall have the authority and jurisdiction to regulate the planting, maintenance, and removal of street and park trees and shrubs to ensure public safety; to alleviate interference by trees and shrubs with the provision of essential services; and to preserve the aesthetics of public places. Abutting property owners shall be contacted at least 72 hours prior to the commencement of any work by the Forester. Such contact shall be effected either by personal contact with the property owner or delivery of a notice to the residence in the manner provided by the Rules and Regulations prepared pursuant to Sec. 2-5-4(2). This contact shall be achieved by the placement of a notice at the residence as provided in the Shade Tree Board Rules and Regulations. If the property owner is advised by written notice instead of personal contact, the notice shall contain the nature of work intended by the Forester and the time it will be carried out.

2-5-6: PLANTING: Street tree planting must conform to all guidelines contained in the Community Forestry Plan. No species other than those included in the Forest Plan may be planted as street trees or park trees without written permission of the Board, and trees may only be selected from the tree list that corresponds with the specific proposed tree location as designated in the Forestry Plan.

In the case of all commercial development and/or planned unit developments (of any size or type) within the City limits, or industrial or residential development on selected streets (see "Community Forestry Plan"), the developer shall be responsible for new street tree plantings prior to receipt of a Certificate of Occupancy unless the Board grants an exception based on unusual circumstances. Street trees so planted shall be no smaller than 1 1/2" in diameter of trunk one foot above the ground and shall conform to the Forestry Plan in species, size and spacing, and shall be growing in a 24" box (or larger), or be balled and burlapped (B&B). Persons planting trees shall abide by the Arboricultural Specifications adopted by the Commission. Existing residential, industrial and commercial developments will be encouraged to conform to the Community Forestry Plan.

2-5-7: PRUNING FOR VISIBILITY: Every owner of a tree located on private property but which overhangs any street or right-of-way within the City shall prune the branches so that such branches shall not severely obstruct the light from any street lamp or obstruct the view of any street intersection so that there shall be a clear space of 8' above the surface of the street or sidewalk. Said owners shall remove all dead, diseased, dangerous, broken or decayed limbs that constitute a menace to the safety of the public. The City shall have the right to enter upon private property to prune any tree or shrub on that property when it interferes with the proper spread of light along the street from a street light, or interferes with the visibility of any traffic control device or sign after giving the property owner that notice referred to in Sec. 2-5-5.

2-5-8: REMOVAL OF HAZARDOUS TREES: The City shall have the right to cause removal of any dead or diseased tree on private property within the City, when such tree constitutes a hazard to life and property, or harbor insects or disease that constitutes a potential threat to other trees. The Board will notify in writing the owners of such trees. Removal shall be done by said owners at their own expense within 60 days after the date of service of notice. In the event of failure of owners to comply with such provisions, the City shall have the authority to enter upon said property to remove a hazardous tree and charge the cost of such removal to the owner. Prior to removal of a hazardous tree by the City, notice shall be given the property owner in the manner probided in Sec. 2-5-5.

2-5-9: TREE REMOVAL OR ABUSE ON PUBLIC PROPERTY: No person shall remove, prune, or otherwise seriously disturb a street tree or park tree without first receiving authorization from the City Forester or the Board. Applications for such authority must be submitted to the Board in writing and shall be acted upon by one of those entities within 5 days after their receipt with an obligation of the City Forester to advise the applicant of the grant or denial of a permit. A person receiving authorization shall abide by the Arboricultural Specifications adopted by the Board. Permits may be conditional with any reasonable conditions affixed thereto. Where a street tree adjoins property occupied by a dwelling unit and forms a part of the landscaping for such residence, the private property owner may effect cosmetic pruning without the permit required by this Section provided the Forester is notified in advance and given opportunity to acquaint the party who will do the pruning with the Arboricultural Specifications which must be fully complied with in all situations. No person shall (a) damage, cut, carve or injure the bark of any tree, (b) attach any rope, wire or other contrivance to any street or park tree or plant, or (c) cause or permit any fire, heat, wire charged with electricity, or any harmful gaseous, liquid or solid substance to come into contact with any street or park tree or plant.

2-5-10: TREE PRUNER'S LICENSE: It shall be unlawful for any person or firm to engage in the business or occupation of pruning, treating, or removing street or park trees within the City without first applying for and procuring a tree pruner's license. The license fee shall be $15.00 annually in advance and in addition to the requisite City Business License, provided, however, that no such license shall be required of any public service company or City employee working in the pursuit of their public service endeavors. Before any license shall be issued, an applicant shall first pass a written examination and an in-the-field practical exercise administered by the City Forester. The applicant shall also file evidence of possession of liability insurance in the minimum amounts of $50,000.00 for property damage and $500,000.00 for bodily injury, indemnifying the City or any person injured or damaged as the result of any endeavors herein described. A tree pruner's license shall be condition precedent to the issuance of a City business license as required by Title 5, Chapter 1, of the St. Geoge City Code.

2-5-11: NATURAL FOREST PROTECTION:

1. It is the intent of the City to protect, preserve and enhance the existing vegetation within any public greenbelt areas that are or may be established in floodways or along waterways in the City, by Chapter 9 of the Zoning Ordinance, and the Board shall extend its concerns to include all plant life indigenous to such greenbelt or otherwise occurring naturally without cultivation, to the extent it may reflect the goals and objectives of this ordinance.

2. The landscape and vegetation plan required by Sec. 10A-6-7, St. George Zoning Ordinance, or that may be required under any other Chapter of said Ordinance, shall be part of the permit process of other boards and shall show existing and proposed vegetation as it relates to proposed development. Such plans may be referred to the Shade Tree and Beautification Board for review and recommendation at the request of such other boards.

3. Undesirable vegetation such as tamarisk, noxious weeds, briars and certain underbrush shall be discouraged in the preservation of natural vegetation areas.

2-5-12: VIOLATIONS; REMEDIES; ENFORCEMENT: Upon a determination that a violation of the provisions of this chapter exists, the City Forester, or his authorized representative, shall ascertain the name of the owner of property abutting the planting strip where the violation has occurred or exists, and he shall serve notice in writing upon the owner or occupant of such property, either personally or by mailing notice, registered mail, postage prepaid, addressed to the owner or occupant at the last known post office address as disclosed by the records of the County Assessor, requiring such owner or occupant, as the case may be, to correct or remedy the violation within such time as the City Forester, or his authorized representative, may designate, but in any event no less than 10 days from the date of service of such notice.

Violations shall be prosecuted as a Class B misdemeanor. The violator may not only be subject to a fine but shall make restitution to the City. Restitution shall be a payment to the City in an amount commensurate with the value of damage to the tree as measured by the International Society of Arboriculture Tree and Shrub Valuation Guidelines. The City shall then proceed to replace the tree or take such other remedial steps as may be best calculated to offset the loss occasioned by the violation. A current copy of the International Society of Arboriculture Tree and Shrub Valuation Guidelines, as amended from time to time, shall be retained for public use at all times in the office of the City Recorder.

In the event removal of a street, park or heritage tree is effected by a licensed tree care company, knowingly and without written permission as required by the Rules and Regulations promulgated by the Shade Tree Board, the City License Officer shall consider revocation of the company's business license pursuant to Sec. 5-1-24A(4), St. George City Code, if the violation is admitted or proven in a court of law.

2-5-13: REVIEW BY CITY COUNCIL: The function of the Shade Tree and Beautification Board is advisory only and the City Council shall have the right to review all of its conduct, acts, and decisions. Any person may appeal a ruling or order of the Board or City Forester to the City Council who may afford a hearing in a proper case and make a final decision. Appeals must be made in writing within 5 days of the ruling or order in question. The

City Forester and parties appealing shall be notified of the appeal hearing at least 48 hours in advance to enable their attendance. Following such notice of intent to appeal, no action on the problem shall be taken by the City Forester pending the outcome of the appeal. The City Council shall hear all parties wishing to be heard on the matter during the appeal proceedings, and shall make a decision. The City Council shall notify in writing all parties concerned of decisions, and shall order the City Forester to take such actions as are necessary to execute the decision.

2-5-14: INTERFERENCE UNLAWFUL; PENALTIES: It shall be unlawful for any person to prevent, delay, or interfere with St. George City personnel, the Board, or any of its agents, while engaging in the planting, cultivating, mulching, pruning, spraying or removing of any street tree, park tree, or trees on private grounds as authorized in this ordinance.

An emergency is hereby declared, the preservation of peace, health and safety of St. George and the inhabitants thereof so requiring. Immediately after its adoption, this ordinance shall be signed by the Mayor and City Recorder and shall be recorded in the ordinance book kept for that purpose. This summary of said ordinance shall be published once in a newspaper published and having general circulation in St. George and shall take effect after its passage and approval and publication as required by law.

PASSED AND APPROVED by the City Council of the City of St. George, Utah, this 1st day of July, 1993.

Karl Brooks

Karl Brooks, Mayor

ATTEST:

Barbara Hunt

City Recorder

Tree Inventory Report

St. George

Annual Aesthetic/Other Benefits of Public Trees

5/12/2014

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Afghan pine	34,445	(N/A)	21.1	18.9	29.64
Mulberry	14,300	(N/A)	12.6	7.8	20.61
Broadleaf Deciduous Medium	8,181	(N/A)	9.4	4.5	15.89
Desert willow	1,046	(N/A)	9.1	0.6	2.09
Raywood ash	7,480	(N/A)	8.4	4.1	16.22
Chinese pistache	1,919	(N/A)	6.0	1.1	5.76
Velvet ash	25,840	(N/A)	3.7	14.2	126.05
Valley cottonwood	13,757	(N/A)	3.1	7.5	81.40
Oak	2,982	(N/A)	2.5	1.6	21.61
Broadleaf Deciduous Large O	21,583	(N/A)	2.4	11.8	163.50
Chitalpa	733	(N/A)	2.2	0.4	5.96
Black locust	4,950	(N/A)	2.2	2.7	40.91
Modesto ash	8,223	(N/A)	2.0	4.5	73.42
Broadleaf Deciduous Small O	421	(N/A)	1.9	0.2	4.08
London planetree	12,675	(N/A)	1.8	7.0	126.75
Arizona cypress	1,370	(N/A)	1.1	0.8	23.62
Conifer Evergreen Large Othe	777	(N/A)	1.1	0.4	13.40
Callery pear	507	(N/A)	1.0	0.3	8.89
Purple leaf plum	213	(N/A)	0.9	0.1	4.35
Chinese elm	320	(N/A)	0.8	0.2	7.28
Honeylocust	2,550	(N/A)	0.8	1.4	59.30
ıosa	189	(N/A)	0.7	0.1	4.61
Eastern redbud	144	(N/A)	0.6	0.1	4.22
Mexican fan palm	260	(N/A)	0.6	0.1	8.38
Cottonwood	3,982	(N/A)	0.5	2.2	137.31
Broadleaf Evergreen Small Ot	12	(N/A)	0.5	0.0	0.46
Russian olive	756	(N/A)	0.5	0.4	30.24
Corkscrew willow	3,670	(N/A)	0.4	2.0	183.49
Palm Evergreen Small Other	237	(N/A)	0.4	0.1	11.87
Arizona ash	4,580	(N/A)	0.3	2.5	305.37
Tree of heaven	1,643	(N/A)	0.1	0.9	205.39
Japanese pagoda tree	549	(N/A)	0.1	0.3	68.60
Conifer Evergreen Small Othe	4	(N/A)	0.1	0.0	0.56
Goldenrain tree	41	(N/A)	0.1	0.0	5.90
Apple	22	(N/A)	0.1	0.0	3.16
Southwestern redbud	16	(N/A)	0.1	0.0	2.66
Catalpa	613	(N/A)	0.1	0.3	122.59
Arizona sycamore	81	(N/A)	0.1	0.0	16.17
Deodar cedar	70	(N/A)	0.1	0.0	13.97
Broadleaf Evergreen Medium	447	(N/A)	0.1	0.2	111.66
Conifer Evergreen Medium O	13	(N/A)	0.1	0.0	4.24
Palm Evergreen Large Other	0	(N/A)	0.1	0.0	0.01
Spruce	2	(N/A)	0.0	0.0	1.24
Cherry	5	(N/A)	0.0	0.0	2.33
Osage orange	16	(N/A)	0.0	0.0	8.20
erican elm	400	(N/A)	0.0	0.2	199.75
land cypress	17	(N/A)	0.0	0.0	8.58
Siberian elm	155	(N/A)	0.0	0.1	77.53

Annual Aesthetic/Other Benefits of Public Trees

5/12/2014

Species	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Mountain ash	2	(N/A)	0.0	0.0	1.94
Broadleaf Evergreen Large Ot	121	(N/A)	0.0	0.1	120.73
Kentucky coffeetree	1	(N/A)	0.0	0.0	1.21
White ash	1	(N/A)	0.0	0.0	1.21
Western catalpa	16	(N/A)	0.0	0.0	15.56
Boxelder	1	(N/A)	0.0	0.0	1.21
Magnolia	0	(N/A)	0.0	0.0	0.11
Chinese hackberry	5	(N/A)	0.0	0.0	4.94
Citywide total	182,340	(N/A)	100.0	100.0	33.12

St. George

Annual CO Benefits of Public Trees

5/12/2014

Species	Sequestered (lb)	Sequestered ($)	Decomposition Release (lb)	Maintenance Release (lb)	Total Released ($)	Avoided (lb)	Avoided ($)	Net Total (lb)	Total Standard ($) Error	% of Total Trees	% of Total $	Avg. $/tree
Afghan pine	54,989	181	-3,240	-1,382	-5	97,551	322	147,918	488 (N/A)	21.1	19.8	0.42
Mulberry	19,592	65	-3,078	-986	-3	79,046	261	94,574	312 (N/A)	12.6	12.7	0.45
Broadleaf Deciduous Medi	11,630	38	-960	-351	-1	23,995	79	34,314	113 (N/A)	9.4	4.6	0.22
Desert willow	3,737	12	-160	-234	-1	15,520	51	18,862	62 (N/A)	9.1	2.5	0.12
Raywood ash	10,718	35	-800	-308	-1	20,313	67	29,922	99 (N/A)	8.4	4.0	0.21
Chinese pistache	2,330	8	-316	-276	-1	19,993	66	21,731	72 (N/A)	6.0	2.9	0.22
Velvet ash	32,046	106	-2,971	-340	-1	55,911	185	84,646	279 (N/A)	3.7	11.4	1.36
Valley cottonwood	184	1	-1,862	-270	-1	38,789	128	36,841	122 (N/A)	3.1	4.9	0.72
Oak	3,797	13	-142	-27	0	6,188	20	9,816	32 (N/A)	2.5	1.3	0.23
Broadleaf Deciduous Large	26,344	87	-1,853	-26	0	42,108	139	66,574	220 (N/A)	2.4	8.9	1.66
Chitalpa	2,324	8	-138	-93	0	7,209	24	9,301	31 (N/A)	2.2	1.2	0.25
Black locust	6,034	20	-216	-24	0	9,964	33	15,758	52 (N/A)	2.2	2.1	0.43
Modesto ash	8,355	28	-519	-122	0	18,054	60	25,768	85 (N/A)	2.0	3.5	0.76
Broadleaf Deciduous Smal	1,271	4	-73	-55	0	3,718	12	4,860	16 (N/A)	1.9	0.7	0.16
London planetree	12,359	41	-1,940	-190	-1	32,757	108	42,987	142 (N/A)	1.8	5.8	1.42
Arizona cypress	2,724	9	-98	-59	0	3,750	12	6,317	21 (N/A)	1.1	0.8	0.36
Conifer Evergreen Large C	1,618	5	-70	-55	0	3,154	10	4,647	15 (N/A)	1.1	0.6	0.26
Callery pear	2,996	10	-229	-11	0	3,742	12	6,497	21 (N/A)	1.0	0.9	0.38
Purple leaf plum	3,061	10	-153	-10	0	2,145	7	5,044	17 (N/A)	0.9	0.7	0.34
Chinese elm	2,334	8	-156	-23	0	1,675	6	3,829	13 (N/A)	0.8	0.5	0.29
Honeylocust	7,079	23	-1,004	-74	0	10,896	36	16,897	56 (N/A)	0.8	2.3	1.30
Mimosa	576	2	-35	-24	0	1,715	6	2,233	7 (N/A)	0.7	0.3	0.18
Eastern redbud	418	1	-27	-18	0	1,250	4	1,623	5 (N/A)	0.6	0.2	0.16
Mexican fan palm	920	3	-112	-6	0	656	2	1,457	5 (N/A)	0.6	0.2	0.16
Cottonwood	30	0	-192	-43	0	5,957	20	5,753	19 (N/A)	0.5	0.8	0.65
Broadleaf Evergreen Small	203	1	-6	-5	0	275	1	468	2 (N/A)	0.5	0.1	0.06
Russian olive	1,165	4	-20	-5	0	1,546	5	2,687	9 (N/A)	0.5	0.4	0.35
Corkscrew willow	4,560	15	-276	-4	0	6,831	23	11,110	37 (N/A)	0.4	1.5	1.83
Palm Evergreen Small Oth	614	2	-69	-4	0	328	1	868	3 (N/A)	0.4	0.1	0.14
Arizona ash	6,671	22	-647	-49	0	9,104	30	15,080	50 (N/A)	0.3	2.0	3.32
Tree of heaven	2,002	7	-131	-2	0	2,984	10	4,854	16 (N/A)	0.1	0.7	2.00
Japanese pagoda tree	679	2	-28	-2	0	1,101	4	1,750	6 (N/A)	0.1	0.2	0.72
Conifer Evergreen Small C	14	0	0	-2	0	26	0	38	0 (N/A)	0.1	0.0	0.02

Annual CO Benefits of Public Trees

5/12/2014

Species	Sequestered (lb)	Sequestered ($)	Decomposition Release (lb)	Maintenance Release (lb)	Total Released ($)	Avoided (lb)	Avoided ($)	Net Total (lb)	Total Standard ($) Error	% of Total Trees	% of Total $	Avg. $/tree
Goldenrain tree	134	0	-7	-5	0	399	1	521	2 (N/A)	0.1	0.1	0.25
Apple	74	0	-2	-3	0	162	1	231	1 (N/A)	0.1	0.0	0.11
Southwestern redbud	46	0	-1	-2	0	92	0	135	0 (N/A)	0.1	0.0	0.07
Catalpa	780	3	-39	-1	0	1,236	4	1,976	7 (N/A)	0.1	0.3	1.30
Arizona sycamore	104	0	-3	-1	0	169	1	268	1 (N/A)	0.1	0.0	0.18
Deodar cedar	109	0	-6	-3	0	189	1	289	1 (N/A)	0.1	0.0	0.19
Broadleaf Evergreen Medi	550	2	-25	-4	0	453	1	974	3 (N/A)	0.1	0.1	0.80
Conifer Evergreen Medium	21	0	-1	-1	0	30	0	50	0 (N/A)	0.1	0.0	0.05
Palm Evergreen Large Oth	25	0	-14	-6	0	1,018	3	1,023	3 (N/A)	0.1	0.1	1.13
Spruce	3	0	0	0	0	3	0	5	0 (N/A)	0.0	0.0	0.01
Cherry	57	0	-1	0	0	30	0	85	0 (N/A)	0.0	0.0	0.14
Osage orange	25	0	-2	-1	0	34	0	56	0 (N/A)	0.0	0.0	0.09
American elm	913	3	-167	-7	0	1,495	5	2,234	7 (N/A)	0.0	0.3	3.69
Leyland cypress	44	0	-2	-2	0	91	0	132	0 (N/A)	0.0	0.0	0.22
Siberian elm	437	1	-204	-6	0	1,796	6	2,024	7 (N/A)	0.0	0.3	3.34
Mountain ash	4	0	0	0	0	4	0	8	0 (N/A)	0.0	0.0	0.03
Broadleaf Evergreen Large	239	1	-7	-1	0	91	0	323	1 (N/A)	0.0	0.0	1.06
Kentucky coffeetree	3	0	0	0	0	4	0	7	0 (N/A)	0.0	0.0	0.02
White ash	3	0	0	0	0	4	0	7	0 (N/A)	0.0	0.0	0.02
Western catalpa	19	0	0	0	0	33	0	51	0 (N/A)	0.0	0.0	0.17
Boxelder	3	0	0	0	0	4	0	7	0 (N/A)	0.0	0.0	0.02
Magnolia	6	0	0	0	0	9	0	14	0 (N/A)	0.0	0.0	0.05
Chinese hackberry	5	0	0	0	0	5	0	10	0 (N/A)	0.0	0.0	0.03
Citywide total	236,979	782	-22,004	-5,123	-17	535,600	1,767	745,453	2,460 (N/A)	100.0	100.0	0.45

St. George

Annual Stormwater Benefits of Public Trees

5/12/2014

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Afghan pine	376,734	1,884	(N/A)	21.1	21.2	1.62
Mulberry	235,639	1,178	(N/A)	12.6	13.2	1.70
Broadleaf Deciduous Medium	64,215	321	(N/A)	9.4	3.6	0.62
Desert willow	26,268	131	(N/A)	9.1	1.5	0.26
Raywood ash	52,619	263	(N/A)	8.4	3.0	0.57
Chinese pistache	49,802	249	(N/A)	6.0	2.8	0.75
Velvet ash	204,064	1,020	(N/A)	3.7	11.5	4.98
Valley cottonwood	133,892	669	(N/A)	3.1	7.5	3.96
Oak	16,037	80	(N/A)	2.5	0.9	0.58
Broadleaf Deciduous Large O	143,212	716	(N/A)	2.4	8.0	5.42
Chitalpa	17,449	87	(N/A)	2.2	1.0	0.71
Black locust	26,047	130	(N/A)	2.2	1.5	1.08
Modesto ash	55,916	280	(N/A)	2.0	3.1	2.50
Broadleaf Deciduous Small O	9,033	45	(N/A)	1.9	0.5	0.44
London planetree	158,058	790	(N/A)	1.8	8.9	7.90
Arizona cypress	13,411	67	(N/A)	1.1	0.8	1.16
Conifer Evergreen Large Othe	9,879	49	(N/A)	1.1	0.6	0.85
Callery pear	9,651	48	(N/A)	1.0	0.5	0.85
Purple leaf plum	4,905	25	(N/A)	0.9	0.3	0.50
Chinese elm	3,998	20	(N/A)	0.8	0.2	0.45
Honeylocust	33,766	169	(N/A)	0.8	1.9	3.93
nosa	4,188	21	(N/A)	0.7	0.2	0.51
Eastern redbud	3,089	15	(N/A)	0.6	0.2	0.45
Mexican fan palm	3,366	17	(N/A)	0.6	0.2	0.54
Cottonwood	20,682	103	(N/A)	0.5	1.2	3.57
Broadleaf Evergreen Small Ot	680	3	(N/A)	0.5	0.0	0.14
Russian olive	3,882	19	(N/A)	0.5	0.2	0.78
Corkscrew willow	22,393	112	(N/A)	0.4	1.3	5.60
Palm Evergreen Small Other	1,605	8	(N/A)	0.4	0.1	0.40
Arizona ash	37,771	189	(N/A)	0.3	2.1	12.59
Tree of heaven	10,140	51	(N/A)	0.1	0.6	6.34
Japanese pagoda tree	3,041	15	(N/A)	0.1	0.2	1.90
Conifer Evergreen Small Othe	68	0	(N/A)	0.1	0.0	0.04
Goldenrain tree	952	5	(N/A)	0.1	0.1	0.68
Apple	366	2	(N/A)	0.1	0.0	0.26
Southwestern redbud	209	1	(N/A)	0.1	0.0	0.17
Catalpa	3,610	18	(N/A)	0.1	0.2	3.61
Arizona sycamore	432	2	(N/A)	0.1	0.0	0.43
Deodar cedar	732	4	(N/A)	0.1	0.0	0.73
Broadleaf Evergreen Medium	2,984	15	(N/A)	0.1	0.2	3.73
Conifer Evergreen Medium O	92	0	(N/A)	0.1	0.0	0.15
Palm Evergreen Large Other	4,222	21	(N/A)	0.1	0.2	7.04
Spruce	11	0	(N/A)	0.0	0.0	0.03
Cherry	67	0	(N/A)	0.0	0.0	0.17
Osage orange	73	0	(N/A)	0.0	0.0	0.18
American elm	5,225	26	(N/A)	0.0	0.3	13.06
land cypress	249	1	(N/A)	0.0	0.0	0.62
Siberian elm	5,263	26	(N/A)	0.0	0.3	13.16
Mountain ash	10	0	(N/A)	0.0	0.0	0.05

Annual Stormwater Benefits of Public Trees

5/12/2014

Species	Total rainfall interception (Gal)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Broadleaf Evergreen Large Ot	693	3	(N/A)	0.0	0.0	3.47
Kentucky coffeetree	10	0	(N/A)	0.0	0.0	0.05
White ash	10	0	(N/A)	0.0	0.0	0.05
Western catalpa	70	0	(N/A)	0.0	0.0	0.35
Boxelder	10	0	(N/A)	0.0	0.0	0.05
Magnolia	21	0	(N/A)	0.0	0.0	0.11
Chinese hackberry	12	0	(N/A)	0.0	0.0	0.06
Citywide total	1,780,823	8,904	(N/A)	100.0	100.0	1.62

St. George

Annual Air Quality Benefits of Public Trees

5/12/2014

Species	Deposition (lb)				Total Depos. ($)	Avoided (lb)				Total Avoided ($)	BVOC Emissions (lb)	BVOC Emissions ($)	Total (lb)	Total ($)	Standard Error	% of Total Trees	Avg. $/tree
	O_3	NO_2	PM_{10}	SO_2		NO_2	PM_{10}	VOC	SO_2								
Afghan pine	315.9	62.1	125.4	2.2	377	230.4	42.7	42.1	192.8	471	-137.5	-26	876.2	822	(N/A)	21.1	0.71
Mulberry	195.6	30.1	66.4	0.8	215	187.1	34.6	34.2	156.2	382	0.0	0	705.1	597	(N/A)	12.6	0.86
Broadleaf Deciduous Medium	58.6	9.0	19.9	0.2	64	57.0	10.5	10.4	47.4	116	0.0	0	213.2	180	(N/A)	9.4	0.35
Desert willow	35.6	5.3	11.3	0.2	38	37.1	6.8	6.7	30.7	75	-3.9	-1	129.8	113	(N/A)	9.1	0.23
Raywood ash	49.4	7.6	16.8	0.2	54	48.3	8.9	8.8	40.1	98	0.0	0	180.2	153	(N/A)	8.4	0.33
Chinese pistache	41.7	6.3	12.7	0.2	44	47.6	8.8	8.7	39.5	97	-18.1	-3	147.4	137	(N/A)	6.0	0.41
Velvet ash	144.2	22.2	48.9	0.6	158	130.2	24.3	24.1	110.5	269	0.0	0	505.0	427	(N/A)	3.7	2.08
Valley cottonwood	103.3	15.6	35.0	0.4	113	90.8	16.9	16.7	76.7	187	-268.7	-51	86.6	249	(N/A)	3.1	1.47
Oak	14.7	2.3	4.9	0.1	16	14.7	2.7	2.7	12.2	30	0.0	0	54.3	46	(N/A)	2.5	0.33
Broadleaf Deciduous Large O	107.0	16.7	35.5	0.5	117	97.5	18.3	18.1	83.2	202	0.0	0	376.7	318	(N/A)	2.4	2.41
Chitalpa	17.1	2.7	5.7	0.1	19	17.1	3.2	3.1	14.2	35	-19.2	-4	44.0	50	(N/A)	2.2	0.41
Black locust	23.7	3.7	7.9	0.1	26	23.7	4.4	4.3	19.7	48	0.0	0	87.5	74	(N/A)	2.2	0.61
Modesto ash	44.8	6.9	15.2	0.2	49	42.4	7.9	7.8	35.7	87	0.0	0	160.8	136	(N/A)	2.0	1.22
Broadleaf Deciduous Small O	8.8	1.4	2.9	0.0	10	8.8	1.6	1.6	7.3	18	-10.2	-2	22.4	26	(N/A)	1.9	0.25
London planetree	82.6	12.9	27.4	0.4	90	76.1	14.3	14.1	64.7	157	-359.1	-68	-66.7	179	(N/A)	1.8	1.79
Arizona cypress	12.1	2.4	4.8	0.1	14	8.9	1.6	1.6	7.4	18	-3.9	-1	35.1	32	(N/A)	1.1	0.55
Conifer Evergreen Large Othe	10.2	2.0	4.1	0.1	12	7.5	1.4	1.4	6.2	15	-2.3	0	30.5	27	(N/A)	1.1	0.47
Callery pear	9.5	1.4	3.2	0.0	10	8.9	1.6	1.6	7.4	18	0.0	0	33.7	28	(N/A)	1.0	0.50
Purple leaf plum	5.3	0.8	1.7	0.0	6	5.1	0.9	0.9	4.2	10	0.0	0	19.0	16	(N/A)	0.9	0.33
Chinese elm	4.1	0.6	1.3	0.0	4	4.0	0.7	0.7	3.3	8	0.0	0	14.8	13	(N/A)	0.8	0.28
Honeylocust	26.3	3.9	8.4	0.1	28	25.5	4.8	4.7	21.5	52	-11.0	-2	84.2	79	(N/A)	0.8	1.83
Mimosa	4.1	0.6	1.4	0.0	4	4.1	0.8	0.7	3.4	8	-4.9	-1	10.1	12	(N/A)	0.7	0.29
Eastern redbud	3.0	0.5	1.0	0.0	3	3.0	0.5	0.5	2.5	6	-3.9	-1	7.1	9	(N/A)	0.6	0.25
Mexican fan palm	2.1	0.4	0.8	0.0	3	1.6	0.3	0.3	1.3	3	-3.8	-1	3.0	5	(N/A)	0.6	0.16
Cottonwood	15.4	2.3	5.2	0.1	17	14.0	2.6	2.6	11.8	29	-55.9	-11	-1.9	35	(N/A)	0.5	1.21
Broadleaf Evergreen Small Ot	1.0	0.2	0.4	0.0	1	0.7	0.1	0.1	0.5	1	0.0	0	3.0	2	(N/A)	0.5	0.10
Russian olive	3.8	0.6	1.3	0.0	4	3.7	0.7	0.7	3.1	7	-0.1	0	13.6	12	(N/A)	0.5	0.46
Corkscrew willow	17.1	2.7	5.7	0.1	19	15.9	3.0	2.9	13.5	33	0.0	0	60.8	51	(N/A)	0.4	2.57
Palm Evergreen Small Other	1.1	0.2	0.4	0.0	1	0.8	0.1	0.1	0.6	2	-2.4	0	1.0	2	(N/A)	0.4	0.12
Arizona ash	24.3	3.7	8.3	0.1	27	21.0	4.0	3.9	18.0	44	0.0	0	83.3	70	(N/A)	0.3	4.69
Tree of heaven	7.6	1.2	2.5	0.0	8	6.9	1.3	1.3	5.9	14	0.0	0	26.7	23	(N/A)	0.1	2.82
Japanese pagoda tree	2.6	0.4	0.9	0.0	3	2.6	0.5	0.5	2.2	5	0.0	0	9.6	8	(N/A)	0.1	1.02
Conifer Evergreen Small Othe	0.1	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	0	0.0	0	0.2	0	(N/A)	0.1	0.03
Goldenrain tree	0.9	0.1	0.3	0.0	1	1.0	0.2	0.2	0.8	2	-0.9	0	2.6	3	(N/A)	0.1	0.40
Apple	0.4	0.1	0.1	0.0	0	0.4	0.1	0.1	0.3	1	-0.2	0	1.2	1	(N/A)	0.1	0.17
Southwestern redbud	0.2	0.0	0.1	0.0	0	0.2	0.0	0.0	0.2	0	-0.1	0	0.7	1	(N/A)	0.1	0.11

St. George

Annual Air Quality Benefits of Public Trees

5/12/2014

Species	Deposition (lb)				Total Depos. ($)	Avoided (lb)				Total Avoided ($)	BVOC Emissions (lb)	BVOC Emissions ($)	Total (lb)	Total ($)	Standard Error	% of Total Trees	Avg. $/tree
	O_3	NO_2	PM_{10}	SO_2		NO_2	PM_{10}	VOC	SO_2								
Catalpa	2.9	0.5	1.0	0.0	3	2.9	0.5	0.5	2.4	6	0.0	0	10.8	9	(N/A)	0.1	1.83
Arizona sycamore	0.4	0.1	0.1	0.0	0	0.4	0.1	0.1	0.3	1	0.0	0	1.5	1	(N/A)	0.1	0.25
Deodar cedar	0.6	0.1	0.2	0.0	1	0.4	0.1	0.1	0.4	1	-0.3	0	1.7	2	(N/A)	0.1	0.32
Broadleaf Evergreen Medium	1.5	0.3	0.6	0.0	2	1.1	0.2	0.2	0.9	2	-2.4	0	2.3	4	(N/A)	0.1	0.88
Conifer Evergreen Medium O	0.1	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	0	0.0	0	0.3	0	(N/A)	0.1	0.09
Palm Evergreen Large Other	3.5	0.7	1.4	0.0	4	2.4	0.4	0.4	2.0	5	-9.3	-2	1.6	7	(N/A)	0.1	2.45
Spruce	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0	(N/A)	0.0	0.01
Cherry	0.1	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	0	0.0	0	0.3	0	(N/A)	0.0	0.11
Osage orange	0.1	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	0	0.0	0	0.3	0	(N/A)	0.0	0.13
American elm	3.1	0.5	1.0	0.0	3	3.4	0.6	0.6	3.0	7	0.0	0	12.2	10	(N/A)	0.0	5.24
Leyland cypress	0.3	0.1	0.1	0.0	0	0.2	0.0	0.0	0.2	0	0.0	0	0.9	1	(N/A)	0.0	0.39
Siberian elm	2.8	0.4	0.9	0.0	3	4.0	0.8	0.8	3.5	9	0.0	0	13.3	12	(N/A)	0.0	5.79
Mountain ash	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0	(N/A)	0.0	0.03
Broadleaf Evergreen Large Ot	0.3	0.1	0.1	0.0	0	0.2	0.0	0.0	0.2	0	-13.3	-3	-12.3	-2	(N/A)	0.0	-1.73
Kentucky coffeetree	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0	(N/A)	0.0	0.03
White ash	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0	(N/A)	0.0	0.03
Western catalpa	0.1	0.0	0.0	0.0	0	0.1	0.0	0.0	0.1	0	0.0	0	0.3	0	(N/A)	0.0	0.24
Boxelder	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0	(N/A)	0.0	0.03
Magnolia	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.1	0	(N/A)	0.0	0.08
Chinese hackberry	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0	(N/A)	0.0	0.04
Citywide total	1,410.2	231.5	493.5	6.9	1,574	1,260.2	234.2	231.1	1,058.5	2,583	-931.6	-177	3,994.4	3,980	(N/A)	100.0	0.72

St. George

Annual Energy Benefits of Public Trees

'12/2014

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Afghan pine	41.9	3,302	1,787.0	1,966	5,268	(N/A)	21.1	18.5	4.53
Mulberry	34.0	2,676	1,491.6	1,641	4,316	(N/A)	12.6	15.2	6.22
Broadleaf Deciduous Mediu	10.3	812	475.2	523	1,335	(N/A)	9.4	4.7	2.59
Desert willow	6.7	525	328.0	361	886	(N/A)	9.1	3.1	1.77
Raywood ash	8.7	688	407.5	448	1,136	(N/A)	8.4	4.0	2.46
Chinese pistache	8.6	677	406.1	447	1,123	(N/A)	6.0	4.0	3.37
Velvet ash	24.0	1,893	845.5	930	2,823	(N/A)	3.7	9.9	13.77
Valley cottonwood	16.7	1,313	626.8	689	2,002	(N/A)	3.1	7.1	11.85
Oak	2.7	209	118.0	130	339	(N/A)	2.5	1.2	2.46
Broadleaf Deciduous Large (	18.1	1,425	578.9	637	2,062	(N/A)	2.4	7.3	15.62
Chitalpa	3.1	244	144.0	158	402	(N/A)	2.2	1.4	3.27
Black locust	4.3	337	197.5	217	554	(N/A)	2.2	2.0	4.58
Modesto ash	7.8	611	308.0	339	950	(N/A)	2.0	3.3	8.48
Broadleaf Deciduous Small (	1.6	126	74.5	82	208	(N/A)	1.9	0.7	2.02
London planetree	14.1	1,109	478.5	526	1,635	(N/A)	1.8	5.8	16.35
Arizona cypress	1.6	127	72.6	80	207	(N/A)	1.1	0.7	3.57
Conifer Evergreen Large Otl	1.4	107	61.0	67	174	(N/A)	1.1	0.6	3.00
Callery pear	1.6	127	74.8	82	209	(N/A)	1.0	0.7	3.67
Purple leaf plum	0.9	73	43.6	48	121	(N/A)	0.9	0.4	2.46
Chinese elm	0.7	57	33.7	37	94	(N/A)	0.8	0.3	2.13
Honeylocust	4.7	369	178.3	196	565	(N/A)	0.8	2.0	13.14
Mimosa	0.7	58	34.2	38	96	(N/A)	0.7	0.3	2.33
Eastern redbud	0.5	42	24.9	27	70	(N/A)	0.6	0.2	2.05
xican fan palm	0.3	22	13.6	15	37	(N/A)	0.6	0.1	1.20
ottonwood	2.6	202	103.2	113	315	(N/A)	0.5	1.1	10.87
Broadleaf Evergreen Small (	0.1	9	6.4	7	16	(N/A)	0.5	0.1	0.65
Russian olive	0.7	52	30.9	34	86	(N/A)	0.5	0.3	3.45
Corkscrew willow	2.9	231	101.1	111	342	(N/A)	0.4	1.2	17.12
Palm Evergreen Small Other	0.1	11	6.8	7	19	(N/A)	0.4	0.1	0.93
Arizona ash	3.9	308	121.4	134	442	(N/A)	0.3	1.6	29.45
Tree of heaven	1.3	101	41.4	46	147	(N/A)	0.1	0.5	18.33
Japanese pagoda tree	0.5	37	20.4	22	60	(N/A)	0.1	0.2	7.46
Conifer Evergreen Small Otl	0.0	1	0.6	1	1	(N/A)	0.1	0.0	0.19
Goldenrain tree	0.2	14	8.0	9	22	(N/A)	0.1	0.1	3.19
Apple	0.1	5	3.4	4	9	(N/A)	0.1	0.0	1.31
Southwestern redbud	0.0	3	1.9	2	5	(N/A)	0.1	0.0	0.87
Catalpa	0.5	42	20.6	23	65	(N/A)	0.1	0.2	12.91
Arizona sycamore	0.1	6	3.4	4	9	(N/A)	0.1	0.0	1.89
Deodar cedar	0.1	6	3.4	4	10	(N/A)	0.1	0.0	2.03
Broadleaf Evergreen Mediur	0.2	15	7.9	9	24	(N/A)	0.1	0.1	6.00
Conifer Evergreen Medium (	0.0	1	0.6	1	2	(N/A)	0.1	0.0	0.58
Palm Evergreen Large Other	0.4	34	16.9	19	53	(N/A)	0.1	0.2	17.69
Spruce	0.0	0	0.1	0	0	(N/A)	0.0	0.0	0.08
Cherry	0.0	1	0.6	1	2	(N/A)	0.0	0.0	0.86
Osage orange	0.0	1	0.7	1	2	(N/A)	0.0	0.0	0.97
American elm	0.6	51	17.9	20	70	(N/A)	0.0	0.2	35.14
Leyland cypress	0.0	3	1.8	2	5	(N/A)	0.0	0.0	2.55
Siberian elm	0.8	61	10.4	11	72	(N/A)	0.0	0.3	36.11
Mountain ash	0.0	0	0.1	0	0	(N/A)	0.0	0.0	0.25
Broadleaf Evergreen Large (	0.0	3	1.8	2	5	(N/A)	0.0	0.0	5.08
tucky coffeetree	0.0	0	0.1	0	0	(N/A)	0.0	0.0	0.25
white ash	0.0	0	0.1	0	0	(N/A)	0.0	0.0	0.25
Western catalpa	0.0	1	0.7	1	2	(N/A)	0.0	0.0	1.88
Boxelder	0.0	0	0.1	0	0	(N/A)	0.0	0.0	0.25
Magnolia	0.0	0	0.2	0	1	(N/A)	0.0	0.0	0.52
Chinese hackberry	0.0	0	0.1	0	0	(N/A)	0.0	0.0	0.29

Annual Energy Benefits of Public Trees

5/12/2014

Species	Total Electricity (MWh)	Electricity ($)	Total Natural Gas (Therms)	Natural Gas ($)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Total	230.1	18,129	9,337.1	10,271	28,400	(N/A)	100.0	100.0	5.16

Structural (Woody) Condition of Public Trees by Species

5/12/2014

:cies	Condition	Tree Count Standard Error	% of Species	% of Public Trees
Afghan pine	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	33 (N/A)	2.84	0.60
	Fair	122 (N/A)	10.50	2.22
	Good	1,003 (N/A)	86.32	18.22
	Total	1,158 (N/A)	99.66	21.03
American elm	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	2 (N/A)	100.00	0.04
	Good	0 (N/A)	0.00	0.00
	Total	2 (N/A)	100.00	0.04
Apple	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	7 (N/A)	100.00	0.13
	Total	7 (N/A)	100.00	0.13
Arizona ash	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	1 (N/A)	6.67	0.02
	Fair	4 (N/A)	26.67	0.07
	Good	10 (N/A)	66.67	0.18
	Total	15 (N/A)	100.00	0.27
Arizona cypress	Dead or Dying	1 (N/A)	1.72	0.02
	Poor	0 (N/A)	0.00	0.00
	Fair	20 (N/A)	34.48	0.36
	Good	37 (N/A)	63.79	0.67
	Total	58 (N/A)	100.00	1.05
·zona sycamore	Dead or Dying	1 (N/A)	20.00	0.02
	Poor	0 (N/A)	0.00	0.00
	Fair	3 (N/A)	60.00	0.05
	Good	1 (N/A)	20.00	0.02
	Total	5 (N/A)	100.00	0.09
Black locust	Dead or Dying	10 (N/A)	8.26	0.18
	Poor	16 (N/A)	13.22	0.29
	Fair	28 (N/A)	23.14	0.51
	Good	67 (N/A)	55.37	1.22
	Total	121 (N/A)	100.00	2.20
Boxelder	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	1 (N/A)	100.00	0.02
	Total	1 (N/A)	100.00	0.02
Broadleaf Deciduous Large Other	Dead or Dying	2 (N/A)	1.52	0.04
	Poor	4 (N/A)	3.03	0.07
	Fair	12 (N/A)	9.09	0.22
	Good	114 (N/A)	86.36	2.07
	Total	132 (N/A)	100.00	2.40
Broadleaf Deciduous Medium Other	Dead or Dying	26 (N/A)	5.05	0.47
	Poor	34 (N/A)	6.60	0.62
	Fair	87 (N/A)	16.89	1.58
	Good	367 (N/A)	71.26	6.67
	Total	514 (N/A)	99.81	9.34
Broadleaf Deciduous Small Other	Dead or Dying	34 (N/A)	33.01	0.62
	Poor	20 (N/A)	19.42	0.36
	Fair	25 (N/A)	24.27	0.45
	Good	24 (N/A)	23.30	0.44
	Total	103 (N/A)	100.00	1.87

Structural (Woody) Condition of Public Trees by Species

5/12/2014

Species	Condition	Tree Count Standard Error	% of Species	% of Public Trees
Broadleaf Evergreen Large Other	Dead or Dying	1 (N/A)	100.00	0.02
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	0 (N/A)	0.00	0.00
	Total	1 (N/A)	100.00	0.02
Broadleaf Evergreen Medium Other	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	1 (N/A)	25.00	0.02
	Fair	1 (N/A)	25.00	0.02
	Good	2 (N/A)	50.00	0.04
	Total	4 (N/A)	100.00	0.07
Broadleaf Evergreen Small Other	Dead or Dying	23 (N/A)	92.00	0.42
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	2 (N/A)	8.00	0.04
	Total	25 (N/A)	100.00	0.45
Callery pear	Dead or Dying	2 (N/A)	3.51	0.04
	Poor	5 (N/A)	8.77	0.09
	Fair	9 (N/A)	15.79	0.16
	Good	41 (N/A)	71.93	0.74
	Total	57 (N/A)	100.00	1.04
Catalpa	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	1 (N/A)	20.00	0.02
	Fair	3 (N/A)	60.00	0.05
	Good	1 (N/A)	20.00	0.02
	Total	5 (N/A)	100.00	0.09
Cherry	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	2 (N/A)	100.00	0.04
	Good	0 (N/A)	0.00	0.00
	Total	2 (N/A)	100.00	0.04
Chinese elm	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	1 (N/A)	2.27	0.02
	Good	43 (N/A)	97.73	0.78
	Total	44 (N/A)	100.00	0.80
Chinese hackberry	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	1 (N/A)	100.00	0.02
	Total	1 (N/A)	100.00	0.02
Chinese pistache	Dead or Dying	7 (N/A)	2.10	0.13
	Poor	4 (N/A)	1.20	0.07
	Fair	33 (N/A)	9.91	0.60
	Good	288 (N/A)	86.49	5.23
	Total	332 (N/A)	99.70	6.03
Chitalpa	Dead or Dying	9 (N/A)	7.32	0.16
	Poor	12 (N/A)	9.76	0.22
	Fair	34 (N/A)	27.64	0.62
	Good	68 (N/A)	55.28	1.24
	Total	123 (N/A)	100.00	2.23
Conifer Evergreen Large Other	Dead or Dying	3 (N/A)	5.17	0.05
	Poor	31 (N/A)	53.45	0.56
	Fair	11 (N/A)	18.97	0.20
	Good	13 (N/A)	22.41	0.24
	Total	58 (N/A)	100.00	1.05

Structural (Woody) Condition of Public Trees by Species

5/12/2014

·cies	Condition	Tree Count Standard Error	% of Species	% of Public Trees
Conifer Evergreen Medium Other	Dead or Dying	1 (N/A)	33.33	0.02
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	2 (N/A)	66.67	0.04
	Total	3 (N/A)	100.00	0.05
Conifer Evergreen Small Other	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	2 (N/A)	25.00	0.04
	Fair	0 (N/A)	0.00	0.00
	Good	6 (N/A)	75.00	0.11
	Total	8 (N/A)	100.00	0.15
Corkscrew willow	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	2 (N/A)	10.00	0.04
	Fair	10 (N/A)	50.00	0.18
	Good	8 (N/A)	40.00	0.15
	Total	20 (N/A)	100.00	0.36
Cottonwood	Dead or Dying	1 (N/A)	3.45	0.02
	Poor	2 (N/A)	6.90	0.04
	Fair	5 (N/A)	17.24	0.09
	Good	21 (N/A)	72.41	0.38
	Total	29 (N/A)	100.00	0.53
Deodar cedar	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	1 (N/A)	20.00	0.02
	Good	4 (N/A)	80.00	0.07
	Total	5 (N/A)	100.00	0.09
·sert willow	Dead or Dying	5 (N/A)	1.00	0.09
	Poor	24 (N/A)	4.80	0.44
	Fair	126 (N/A)	25.20	2.29
	Good	345 (N/A)	69.00	6.27
	Total	500 (N/A)	100.00	9.08
Eastern redbud	Dead or Dying	2 (N/A)	5.88	0.04
	Poor	6 (N/A)	17.65	0.11
	Fair	10 (N/A)	29.41	0.18
	Good	16 (N/A)	47.06	0.29
	Total	34 (N/A)	100.00	0.62
Goldenrain tree	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	1 (N/A)	14.29	0.02
	Fair	2 (N/A)	28.57	0.04
	Good	4 (N/A)	57.14	0.07
	Total	7 (N/A)	100.00	0.13
Honeylocust	Dead or Dying	1 (N/A)	2.33	0.02
	Poor	8 (N/A)	18.60	0.15
	Fair	17 (N/A)	39.53	0.31
	Good	17 (N/A)	39.53	0.31
	Total	43 (N/A)	100.00	0.78
Japanese pagoda tree	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	2 (N/A)	25.00	0.04
	Good	6 (N/A)	75.00	0.11
	Total	8 (N/A)	100.00	0.15
·ntucky coffeetree	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	1 (N/A)	100.00	0.02
	Total	1 (N/A)	100.00	0.02

Structural (Woody) Condition of Public Trees by Species

5/12/2014

Species	Condition	Tree Count Standard Error	% of Species	% of Public Trees
Leyland cypress	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	2 (N/A)	100.00	0.04
	Total	2 (N/A)	100.00	0.04
London planetree	Dead or Dying	5 (N/A)	5.00	0.09
	Poor	11 (N/A)	11.00	0.20
	Fair	20 (N/A)	20.00	0.36
	Good	64 (N/A)	64.00	1.16
	Total	100 (N/A)	100.00	1.82
Magnolia	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	1 (N/A)	100.00	0.02
	Good	0 (N/A)	0.00	0.00
	Total	1 (N/A)	100.00	0.02
Mexican fan palm	Dead or Dying	7 (N/A)	22.58	0.13
	Poor	15 (N/A)	48.39	0.27
	Fair	7 (N/A)	22.58	0.13
	Good	2 (N/A)	6.45	0.04
	Total	31 (N/A)	100.00	0.56
Mimosa	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	13 (N/A)	31.71	0.24
	Fair	13 (N/A)	31.71	0.24
	Good	15 (N/A)	36.59	0.27
	Total	41 (N/A)	100.00	0.74
Modesto ash	Dead or Dying	1 (N/A)	0.89	0.02
	Poor	1 (N/A)	0.89	0.02
	Fair	3 (N/A)	2.68	0.05
	Good	106 (N/A)	94.64	1.93
	Total	111 (N/A)	99.11	2.02
Mountain ash	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	1 (N/A)	100.00	0.02
	Total	1 (N/A)	100.00	0.02
Mulberry	Dead or Dying	3 (N/A)	0.43	0.05
	Poor	14 (N/A)	2.02	0.25
	Fair	74 (N/A)	10.66	1.34
	Good	601 (N/A)	86.60	10.92
	Total	692 (N/A)	99.71	12.57
Oak	Dead or Dying	30 (N/A)	21.74	0.54
	Poor	14 (N/A)	10.14	0.25
	Fair	23 (N/A)	16.67	0.42
	Good	71 (N/A)	51.45	1.29
	Total	138 (N/A)	100.00	2.51
Osage orange	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	2 (N/A)	100.00	0.04
	Total	2 (N/A)	100.00	0.04
Palm Evergreen Large Other	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	3 (N/A)	100.00	0.05
	Fair	0 (N/A)	0.00	0.00
	Good	0 (N/A)	0.00	0.00
	Total	3 (N/A)	100.00	0.05

Structural (Woody) Condition of Public Trees by Species

5/12/2014

:ies	Condition	Tree Count Standard Error	% of Species	% of Public Trees
Palm Evergreen Small Other	Dead or Dying	4 (N/A)	20.00	0.07
	Poor	7 (N/A)	35.00	0.13
	Fair	2 (N/A)	10.00	0.04
	Good	7 (N/A)	35.00	0.13
	Total	20 (N/A)	100.00	0.36
Purple leaf plum	Dead or Dying	1 (N/A)	2.04	0.02
	Poor	0 (N/A)	0.00	0.00
	Fair	8 (N/A)	16.33	0.15
	Good	40 (N/A)	81.63	0.73
	Total	49 (N/A)	100.00	0.89
Raywood ash	Dead or Dying	23 (N/A)	4.99	0.42
	Poor	34 (N/A)	7.38	0.62
	Fair	72 (N/A)	15.62	1.31
	Good	329 (N/A)	71.37	5.98
	Total	458 (N/A)	99.35	8.32
Russian olive	Dead or Dying	2 (N/A)	8.00	0.04
	Poor	0 (N/A)	0.00	0.00
	Fair	2 (N/A)	8.00	0.04
	Good	21 (N/A)	84.00	0.38
	Total	25 (N/A)	100.00	0.45
Siberian elm	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	1 (N/A)	50.00	0.02
	Good	1 (N/A)	50.00	0.02
	Total	2 (N/A)	100.00	0.04
.hwestern redbud	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	1 (N/A)	16.67	0.02
	Fair	1 (N/A)	16.67	0.02
	Good	4 (N/A)	66.67	0.07
	Total	6 (N/A)	100.00	0.11
Spruce	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	1 (N/A)	50.00	0.02
	Good	1 (N/A)	50.00	0.02
	Total	2 (N/A)	100.00	0.04
Tree of heaven	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	3 (N/A)	37.50	0.05
	Good	5 (N/A)	62.50	0.09
	Total	8 (N/A)	100.00	0.15
Valley cottonwood	Dead or Dying	8 (N/A)	4.73	0.15
	Poor	17 (N/A)	10.06	0.31
	Fair	33 (N/A)	19.53	0.60
	Good	110 (N/A)	65.09	2.00
	Total	168 (N/A)	99.41	3.05
Velvet ash	Dead or Dying	8 (N/A)	3.90	0.15
	Poor	12 (N/A)	5.85	0.22
	Fair	42 (N/A)	20.49	0.76
	Good	143 (N/A)	69.76	2.60
	Total	205 (N/A)	100.00	3.72
Western catalpa	Dead or Dying	0 (N/A)	0.00	0.00
	Poor	0 (N/A)	0.00	0.00
	Fair	0 (N/A)	0.00	0.00
	Good	1 (N/A)	100.00	0.02
	Total	1 (N/A)	100.00	0.02

Structural (Woody) Condition of Public Trees by Species

5/12/2014

Species	Condition	Tree Count	Standard Error	% of Species	% of Public Trees
White ash	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	1	(N/A)	100.00	0.02
	Total	1	(N/A)	100.00	0.02

St. George

Annual Benefits of Public Trees by Species ($/tree)

5/12/2014

;cies	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error
Afghan pine	4.53	0.42	0.71	1.62	29.64	36.92	(N/A)
Mulberry	6.22	0.45	0.86	1.70	20.61	29.83	(N/A)
Broadleaf Deciduous M	2.59	0.22	0.35	0.62	15.89	19.67	(N/A)
Desert willow	1.77	0.12	0.23	0.26	2.09	4.48	(N/A)
Raywood ash	2.46	0.21	0.33	0.57	16.22	19.80	(N/A)
Chinese pistache	3.37	0.22	0.41	0.75	5.76	10.51	(N/A)
Velvet ash	13.77	1.36	2.08	4.98	126.05	148.24	(N/A)
Valley cottonwood	11.85	0.72	1.47	3.96	81.40	99.40	(N/A)
Oak	2.46	0.23	0.33	0.58	21.61	25.21	(N/A)
Broadleaf Deciduous L	15.62	1.66	2.41	5.42	163.50	188.63	(N/A)
Chitalpa	3.27	0.25	0.41	0.71	5.96	10.59	(N/A)
Black locust	4.58	0.43	0.61	1.08	40.91	47.61	(N/A)
Modesto ash	8.48	0.76	1.22	2.50	73.42	86.37	(N/A)
Broadleaf Deciduous S	2.02	0.16	0.25	0.44	4.08	6.94	(N/A)
London planetree	16.35	1.42	1.79	7.90	126.75	154.21	(N/A)
Arizona cypress	3.57	0.36	0.55	1.16	23.62	29.25	(N/A)
Conifer Evergreen Lar	3.00	0.26	0.47	0.85	13.40	17.98	(N/A)
Callery pear	3.67	0.38	0.50	0.85	8.89	14.28	(N/A)
Purple leaf plum	2.46	0.34	0.33	0.50	4.35	7.98	(N/A)
Chinese elm	2.13	0.29	0.28	0.45	7.28	10.43	(N/A)
Honeylocust	13.14	1.30	1.83	3.93	59.30	79.49	(N/A)
Mimosa	2.33	0.18	0.29	0.51	4.61	7.93	(N/A)
Eastern redbud	2.05	0.16	0.25	0.45	4.22	7.13	(N/A)
Mexican fan palm	1.20	0.16	0.16	0.54	8.38	10.44	(N/A)
ttonwood	10.87	0.65	1.21	3.57	137.31	153.60	(N/A)
Broadleaf Evergreen S	0.65	0.06	0.10	0.14	0.46	1.41	(N/A)
Russian olive	3.45	0.35	0.46	0.78	30.24	35.29	(N/A)
Corkscrew willow	17.12	1.83	2.57	5.60	183.49	210.61	(N/A)
Palm Evergreen Small	0.93	0.14	0.12	0.40	11.87	13.46	(N/A)
Arizona ash	29.45	3.32	4.69	12.59	305.37	355.41	(N/A)
Tree of heaven	18.33	2.00	2.82	6.34	205.39	234.88	(N/A)
Japanese pagoda tree	7.46	0.72	1.02	1.90	68.60	79.71	(N/A)
Conifer Evergreen Sm:	0.19	0.02	0.03	0.04	0.56	0.83	(N/A)
Goldenrain tree	3.19	0.25	0.40	0.68	5.90	10.42	(N/A)
Apple	1.31	0.11	0.17	0.26	3.16	5.01	(N/A)
Southwestern redbud	0.87	0.07	0.11	0.17	2.66	3.88	(N/A)
Catalpa	12.91	1.30	1.83	3.61	122.59	142.24	(N/A)
Arizona sycamore	1.89	0.18	0.25	0.43	16.17	18.92	(N/A)
Deodar cedar	2.03	0.19	0.32	0.73	13.97	17.25	(N/A)
Broadleaf Evergreen M	6.00	0.80	0.88	3.73	111.66	123.07	(N/A)
Conifer Evergreen Me	0.58	0.05	0.09	0.15	4.24	5.11	(N/A)
Palm Evergreen Large	17.69	1.13	2.45	7.04	0.01	28.31	(N/A)
Spruce	0.08	0.01	0.01	0.03	1.24	1.37	(N/A)
Cherry	0.86	0.14	0.11	0.17	2.33	3.62	(N/A)
Osage orange	0.97	0.09	0.13	0.18	8.20	9.58	(N/A)
American elm	35.14	3.69	5.24	13.06	199.75	256.88	(N/A)
Leyland cypress	2.55	0.22	0.39	0.62	8.58	12.36	(N/A)
Siberian elm	36.11	3.34	5.79	13.16	77.53	135.93	(N/A)
Mountain ash	0.25	0.03	0.03	0.05	1.94	2.30	(N/A)
Broadleaf Evergreen L	5.08	1.06	-1.73	3.47	120.73	128.61	(N/A)
ntucky coffeetree	0.25	0.02	0.03	0.05	1.21	1.57	(N/A)
White ash	0.25	0.02	0.03	0.05	1.21	1.57	(N/A)
Western catalpa	1.88	0.17	0.24	0.35	15.56	18.20	(N/A)

Annual Benefits of Public Trees by Species ($/tree)

5/12/2014

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($) Standard Error
Boxelder	0.25	0.02	0.03	0.05	1.21	1.57 (N/A)
Magnolia	0.52	0.05	0.08	0.11	0.11	0.87 (N/A)
Chinese hackberry	0.29	0.03	0.04	0.06	4.94	5.35 (N/A)
Citywide Total	5.16	0.45	0.72	1.62	33.12	41.06 (N/A)

St. George

Stored CO2 Benefits of Public Trees

'12/2014

Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Afghan pine	475,806	1,570	(N/A)	21.1	15.4	1.35
Mulberry	422,242	1,393	(N/A)	12.6	13.7	2.01
Broadleaf Deciduous	99,633	329	(N/A)	9.4	3.2	0.64
Desert willow	21,916	72	(N/A)	9.1	0.7	0.14
Raywood ash	77,709	256	(N/A)	8.4	2.5	0.56
Chinese pistache	45,981	152	(N/A)	6.0	1.5	0.46
Velvet ash	436,790	1,441	(N/A)	3.7	14.1	7.03
Valley cottonwood	261,799	864	(N/A)	3.1	8.5	5.11
Oak	20,881	69	(N/A)	2.5	0.7	0.50
Broadleaf Deciduous	272,470	899	(N/A)	2.4	8.8	6.81
Chitalpa	20,263	67	(N/A)	2.2	0.7	0.54
Black locust	31,833	105	(N/A)	2.2	1.0	0.87
Modesto ash	75,931	251	(N/A)	2.0	2.5	2.24
Broadleaf Deciduous	10,394	34	(N/A)	1.9	0.3	0.33
London planetree	285,267	941	(N/A)	1.8	9.2	9.41
Arizona cypress	12,596	42	(N/A)	1.1	0.4	0.72
Conifer Evergreen La	10,314	34	(N/A)	1.1	0.3	0.59
Callery pear	33,736	111	(N/A)	1.0	1.1	1.95
Purple leaf plum	22,492	74	(N/A)	0.9	0.7	1.51
Chinese elm	7,807	26	(N/A)	0.8	0.3	0.59
Honeylocust	147,625	487	(N/A)	0.8	4.8	11.33
Mimosa	4,996	16	(N/A)	0.7	0.2	0.40
Eastern redbud	3,867	13	(N/A)	0.6	0.1	0.38
Mexican fan palm	16,483	54	(N/A)	0.6	0.5	1.75
tonwood	27,235	90	(N/A)	0.5	0.9	3.10
oadleaf Evergreen S	837	3	(N/A)	0.5	0.0	0.11
Russian olive	2,883	10	(N/A)	0.5	0.1	0.38
Corkscrew willow	40,653	134	(N/A)	0.4	1.3	6.71
Palm Evergreen Smal	10,122	33	(N/A)	0.4	0.3	1.67
Arizona ash	95,144	314	(N/A)	0.3	3.1	20.93
Tree of heaven	19,198	63	(N/A)	0.1	0.6	7.92
Japanese pagoda tree	4,191	14	(N/A)	0.1	0.1	1.73
Conifer Evergreen Sm	18	0	(N/A)	0.1	0.0	0.01
Goldenrain tree	1,016	3	(N/A)	0.1	0.0	0.48
Apple	247	1	(N/A)	0.1	0.0	0.12
Southwestern redbud	131	0	(N/A)	0.1	0.0	0.07
Catalpa	5,697	19	(N/A)	0.1	0.2	3.76
Arizona sycamore	501	2	(N/A)	0.1	0.0	0.33
Deodar cedar	877	3	(N/A)	0.1	0.0	0.58
Broadleaf Evergreen I	3,424	11	(N/A)	0.1	0.1	2.83
Conifer Evergreen Me	48	0	(N/A)	0.1	0.0	0.05
Palm Evergreen Large	2,017	7	(N/A)	0.1	0.1	2.22
Spruce	3	0	(N/A)	0.0	0.0	0.01
Cherry	185	1	(N/A)	0.0	0.0	0.30
Osage orange	73	0	(N/A)	0.0	0.0	0.12
American elm	24,490	81	(N/A)	0.0	0.8	40.41
Leyland cypress	228	1	(N/A)	0.0	0.0	0.38
Siberian elm	29,531	97	(N/A)	0.0	1.0	48.73
Mountain ash	3	0	(N/A)	0.0	0.0	0.01
Broadleaf Evergreen I	994	3	(N/A)	0.0	0.0	3.28
Kentucky coffeetree	5	0	(N/A)	0.0	0.0	0.02
White ash	5	0	(N/A)	0.0	0.0	0.02
tern catalpa	69	0	(N/A)	0.0	0.0	0.23
xelder	5	0	(N/A)	0.0	0.0	0.02
Magnolia	14	0	(N/A)	0.0	0.0	0.05
Chinese hackberry	4	0	(N/A)	0.0	0.0	0.01

The value of stored carbon dioxide is calculated as the total amount of carbon dioxide sequestered annually over the life of each tree, summed for the population. This value should not be added to the Replacement Value or double-counting of the carbon dioxide storage benefit will occur.

Stored CO2 Benefits of Public Trees

5/12/2014

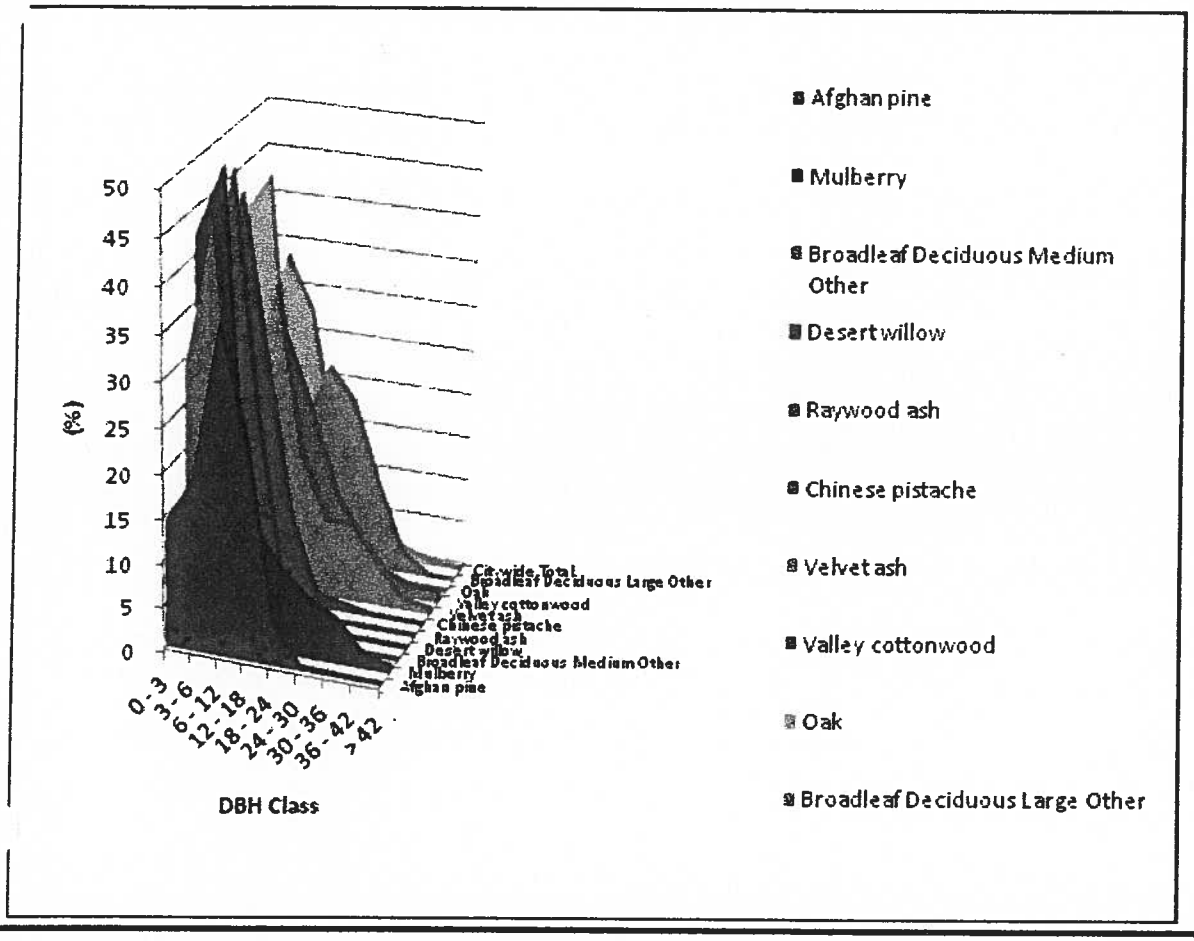
Species	Total Stored CO2 (lbs)	Total ($)	Standard Error	% of Total Trees	% of Total $	Avg. $/tree
Citywide total	3,088,680	10,193	(N/A)	100.0	100.0	1.85

The value of stored carbon dioxide is calculated as the total amount of carbon dioxide sequestered annually over the life of each tree, summed for the population. This value should not be added to the Replacement Value or double-counting of the carbon dioxide storage benefit will occur

St. George

Relative Age Distribution of Top 10 Public Tree Species for All Zones (%)

5/13/2014



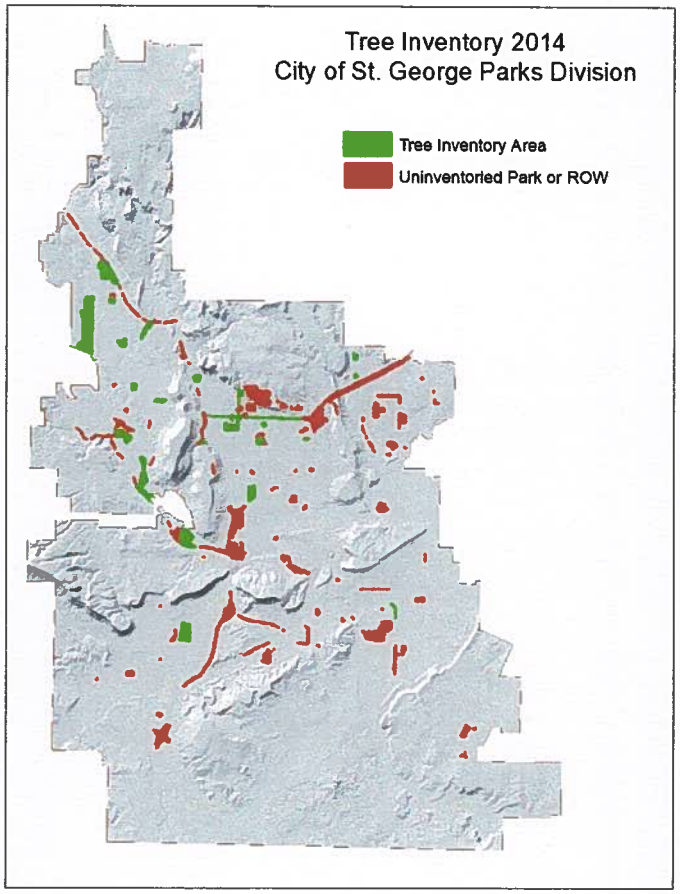
	DBH class (in)								
Species	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	> 42
Afghan pine	14.46	19.54	36.40	24.35	4.99	0.17	0.09	0.00	0.00
Mulberry	6.05	24.78	33.29	13.40	9.37	6.48	4.76	1.30	0.58
Broadleaf Deciduous Me	29.32	44.66	19.22	6.02	0.78	0.00	0.00	0.00	0.00
Desert willow	42.20	49.60	8.20	0.00	0.00	0.00	0.00	0.00	0.00
Raywood ash	25.38	48.37	22.56	3.69	0.00	0.00	0.00	0.00	0.00
Chinese pistache	16.82	45.05	27.03	9.31	1.20	0.60	0.00	0.00	0.00
Velvet ash	2.44	23.41	34.63	16.10	8.78	8.78	4.39	0.98	0.49
Valley cottonwood	4.73	26.04	27.81	20.12	10.65	5.92	2.37	1.18	1.18
Oak	39.86	44.20	11.59	4.35	0.00	0.00	0.00	0.00	0.00
Broadleaf Deciduous Lar	6.82	25.00	14.39	22.73	18.94	9.85	2.27	0.00	0.00
Citywide Total	18.91	33.55	27.55	12.08	4.18	2.29	1.02	0.29	0.15

Street Tree Identification Tools

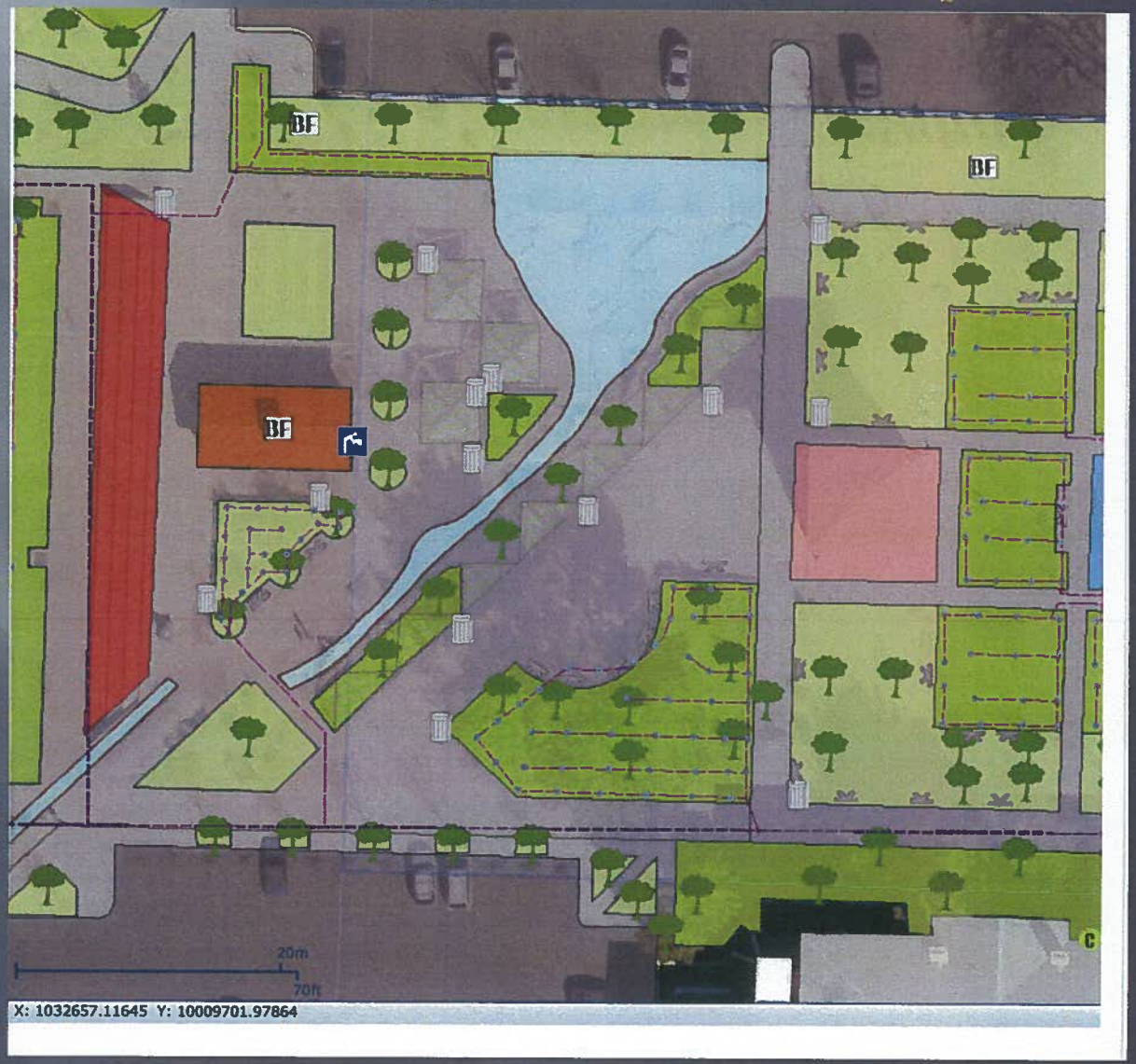
Tree Inventory

- 6,750 trees in the downtown area inventoried
  - Size
  - Condition
  - Benefits

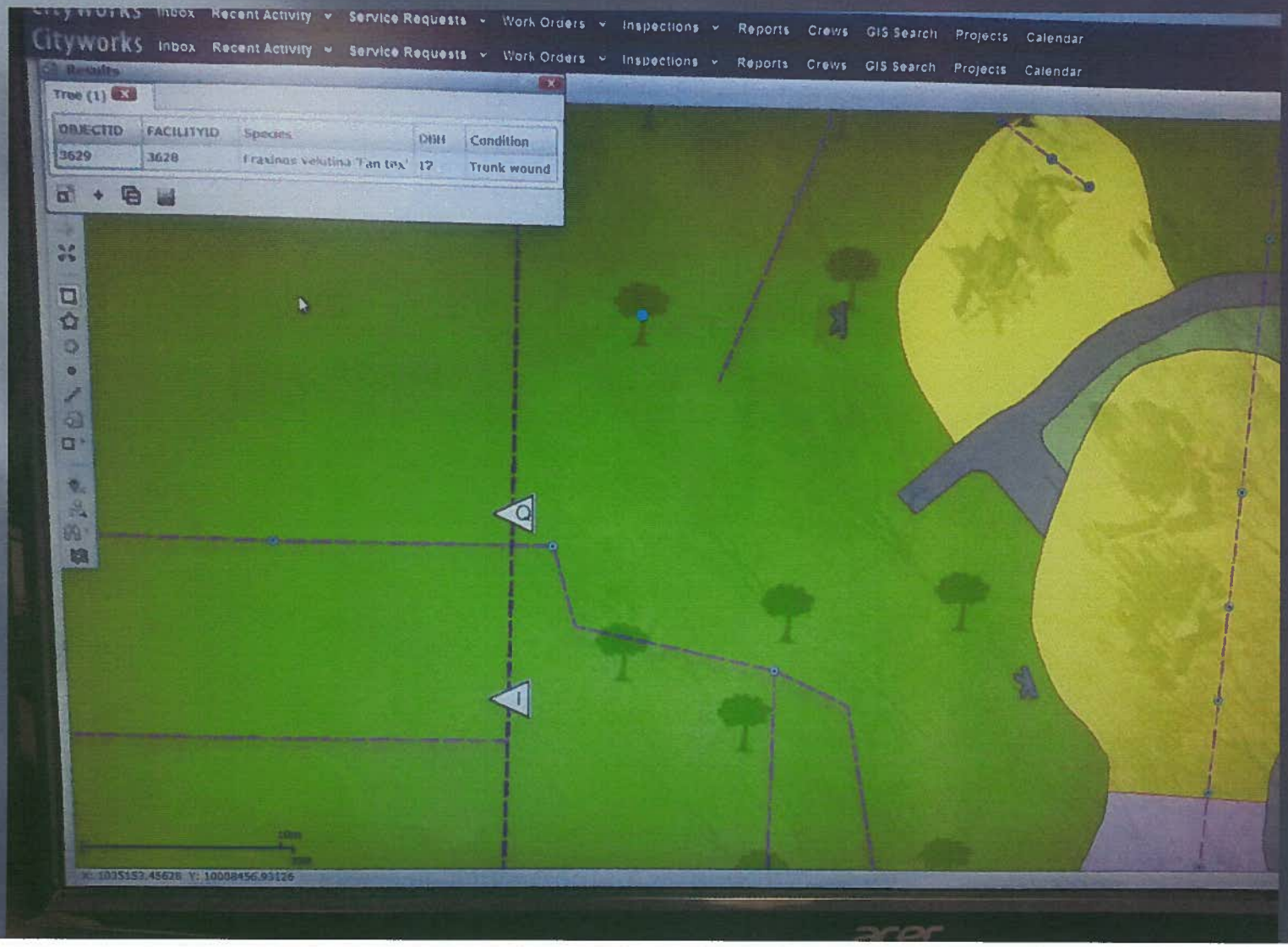
50% trees now inventoried



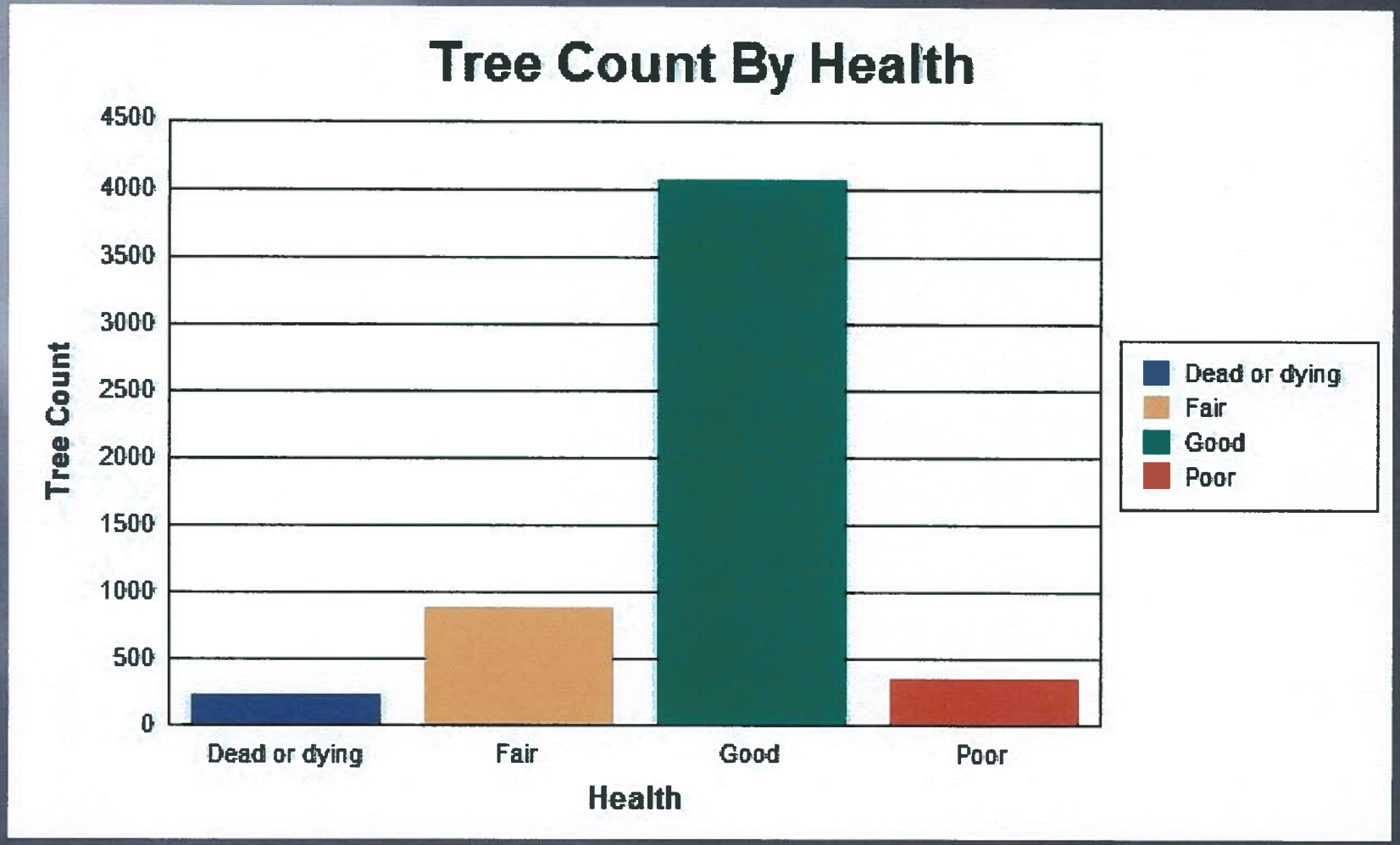
All Trees inventoried now a layer in Cityworks Maps



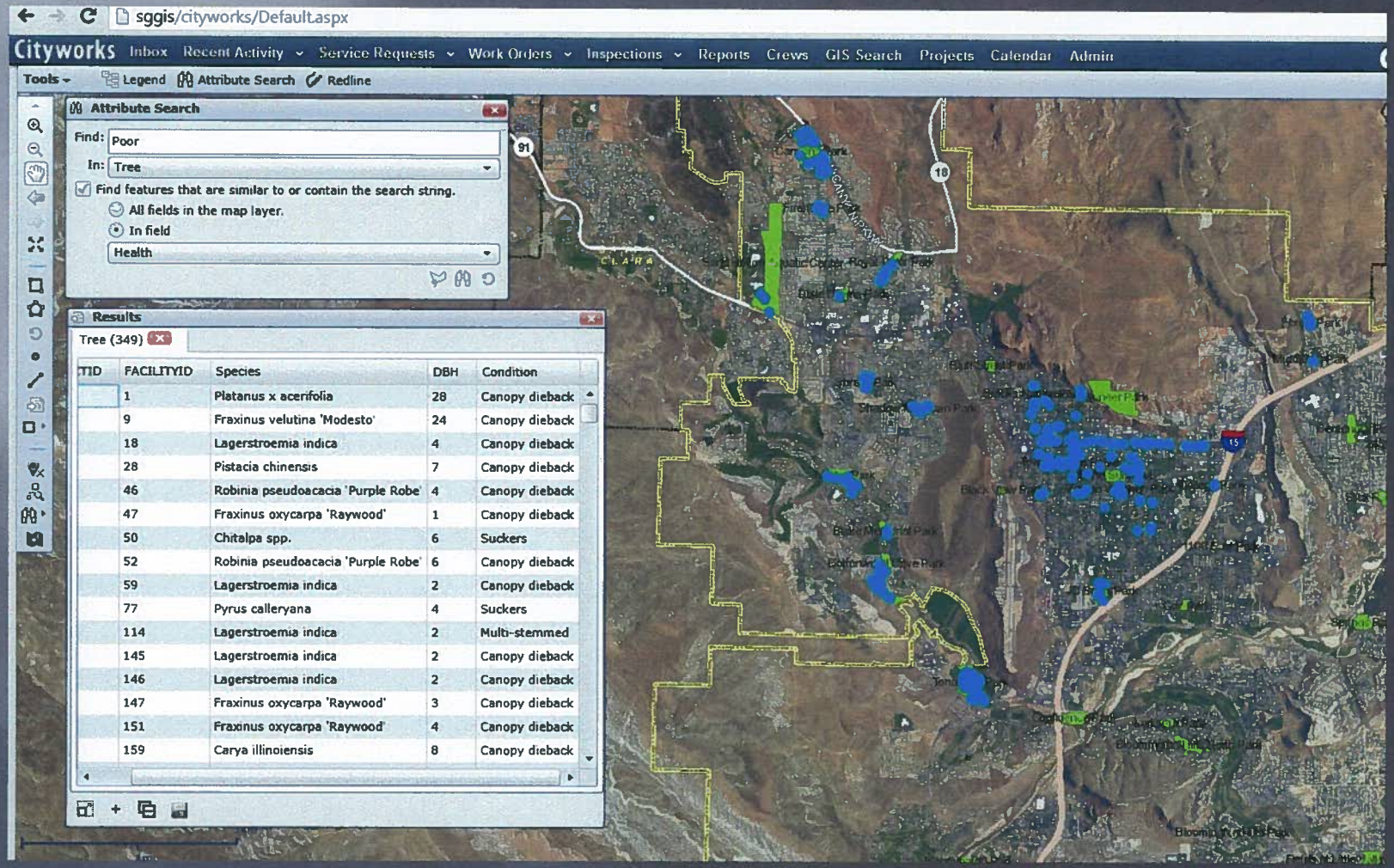
Can go to specific tree



Health of Trees



Specific Search Criteria

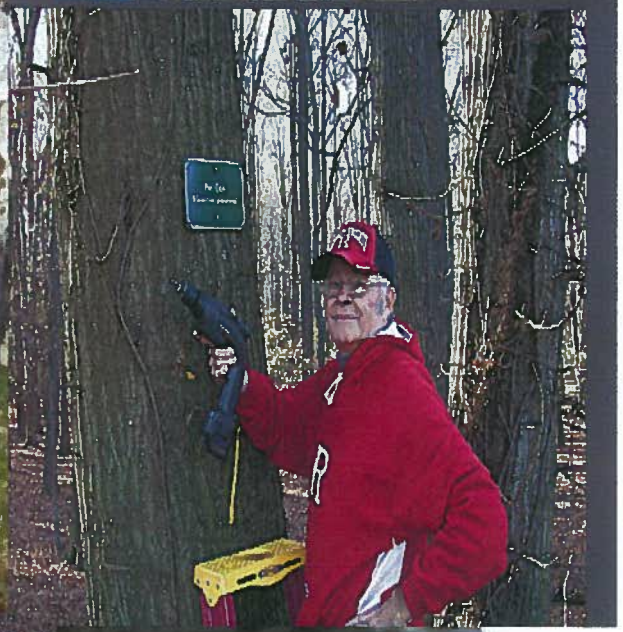


TID	FACILITYID	Species	DBH	Condition
	1	Platanus x acerifolia	28	Canopy dieback
	9	Fraxinus velutina 'Modesto'	24	Canopy dieback
	18	Lagerstroemia indica	4	Canopy dieback
	28	Pistacia chinensis	7	Canopy dieback
	46	Robinia pseudoacacia 'Purple Robe'	4	Canopy dieback
	47	Fraxinus oxycarpa 'Raywood'	1	Canopy dieback
	50	Chitalpa spp.	6	Suckers
	52	Robinia pseudoacacia 'Purple Robe'	6	Canopy dieback
	59	Lagerstroemia indica	2	Canopy dieback
	77	Pyrus calleryana	4	Suckers
	114	Lagerstroemia indica	2	Multi-stemmed
	145	Lagerstroemia indica	2	Canopy dieback
	146	Lagerstroemia indica	2	Canopy dieback
	147	Fraxinus oxycarpa 'Raywood'	3	Canopy dieback
	151	Fraxinus oxycarpa 'Raywood'	4	Canopy dieback
	159	Carya illinoiensis	8	Canopy dieback

Tree Identification Tags

- Recognize as a City Owned Tree
- Species Identification

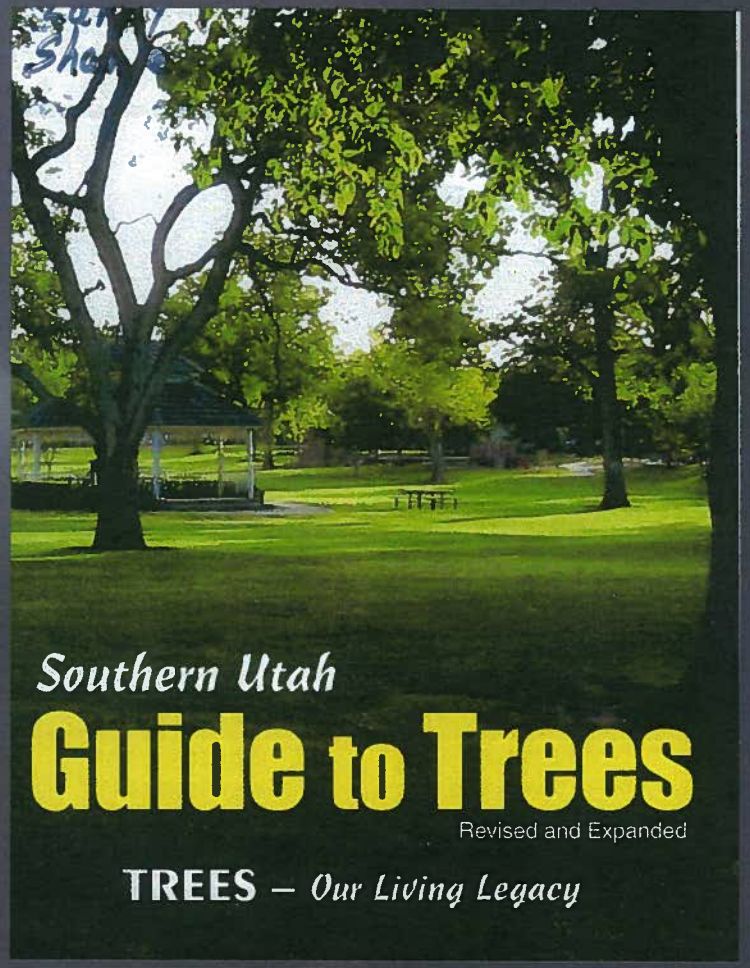
Many kinds of Tags



Cost for Tag and Special Spring Nails
$12.80.
Cost for Current Inventory of Trees
$86,400.00

Education Through the Shade Tree and Beautification Board

- Check tree requests
- Owner Responsibilities
- Volunteer Planting
- Seminars
- Arbor Day Events
- Shade Tree Booklet



Trees can be added to Property Title

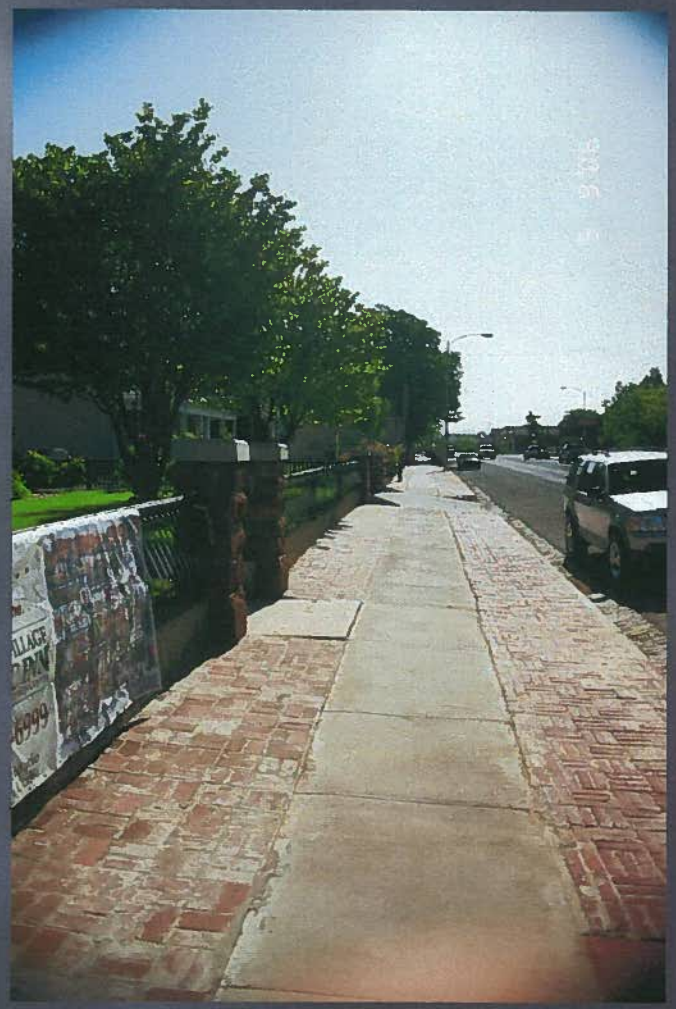
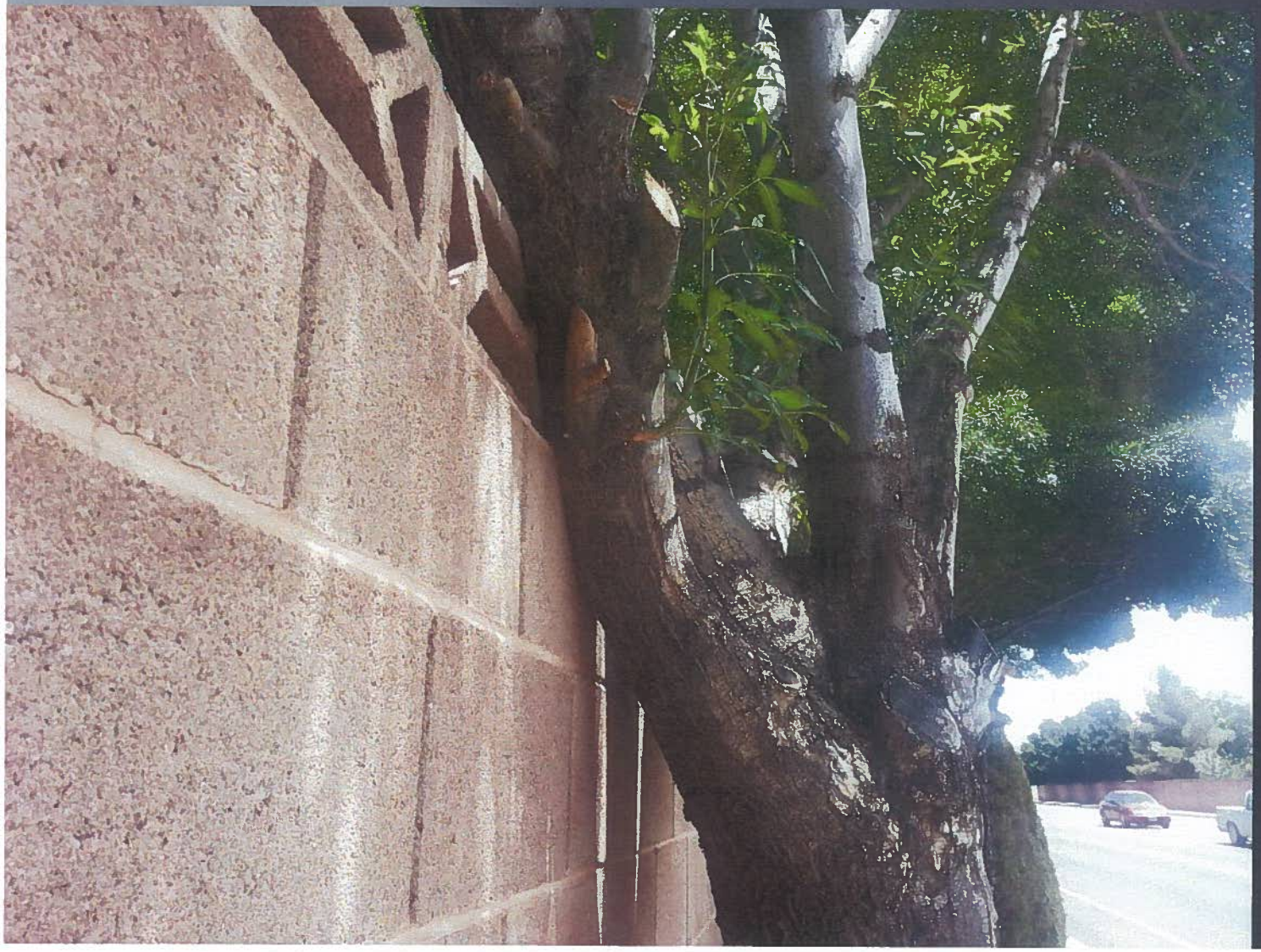
- Each tree would have to be entered with a legal description
- Trees would become part of the property disclosures

Code Variances

Lost trees due to neglect.

- Code enforcement has been contacting residents

Replace Missing Trees



Give them room when planning