



City of Columbia

701 East Broadway, Columbia, Missouri 65201

Department Source: City Manager - Sustainability

To: City Council

From: City Manager & Staff

Council Meeting Date: January 4, 2016

Re: REPORT – 2015 Infrastructure Report

Executive Summary

The City of Columbia's 2013-2015 strategic plan requested an annual infrastructure report be created for Council and the community. The 2015 Infrastructure Report is the third report created and showcases highlights, improvements, and what's new in 2016. The report also discusses how we plan and fund infrastructure improvements and what growth Columbia can expect to see in the coming year.

Discussion

The City of Columbia strategic plan identifies infrastructure as a strategic priority area for our community. The 2015 Infrastructure Report is the third report created and showcases highlights, improvements, and what's new in 2016. The report also discusses how we plan and fund infrastructure improvements and what growth Columbia can expect to see in the coming year.

The intent of the report is not to provide ratings for the projects or to just list what was accomplished in 2015 for City Council. Rather, the report is intended to be read by the average citizen to show what was accomplished in 2015 with emphasis on the diversity of infrastructure that the city of Columbia is charged with maintaining. As the report states, our infrastructure is a network of systems and we are connected by our infrastructure. It is what makes us a community and everyone contributes to its success.

The 2015 Infrastructure is not divided by departments; it is organized by category of infrastructure. The categories include:

- Parks
- Electric System
- Water System
- Streets, Sidewalks & Trails
- Transportation
- Sewer & Stormwater

The report is available online and printed by request. The online version allows viewers to click-through hyperlinks to view additional information on the projects.

Fiscal Impact

Short-Term Impact: None

Long-Term Impact: None



Vision & Strategic Plan Impact

[Vision Impacts:](#)

Primary Impact: Not Applicable, Secondary Impact: Secondary, Tertiary Impact: Tertiary

[Strategic Plan Impacts:](#)

Primary Impact: Infrastructure, Secondary Impact: Secondary, Tertiary Impact: Tertiary

[Comprehensive Plan Impacts:](#)

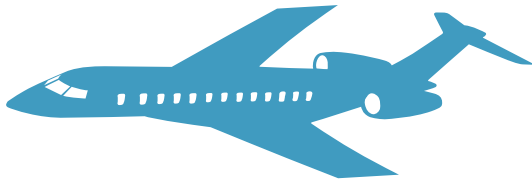
Primary Impact: Infrastructure, Secondary Impact: Secondary, Tertiary Impact: Tertiary

Legislative History

Date	Action
None	None

Suggested Council Action

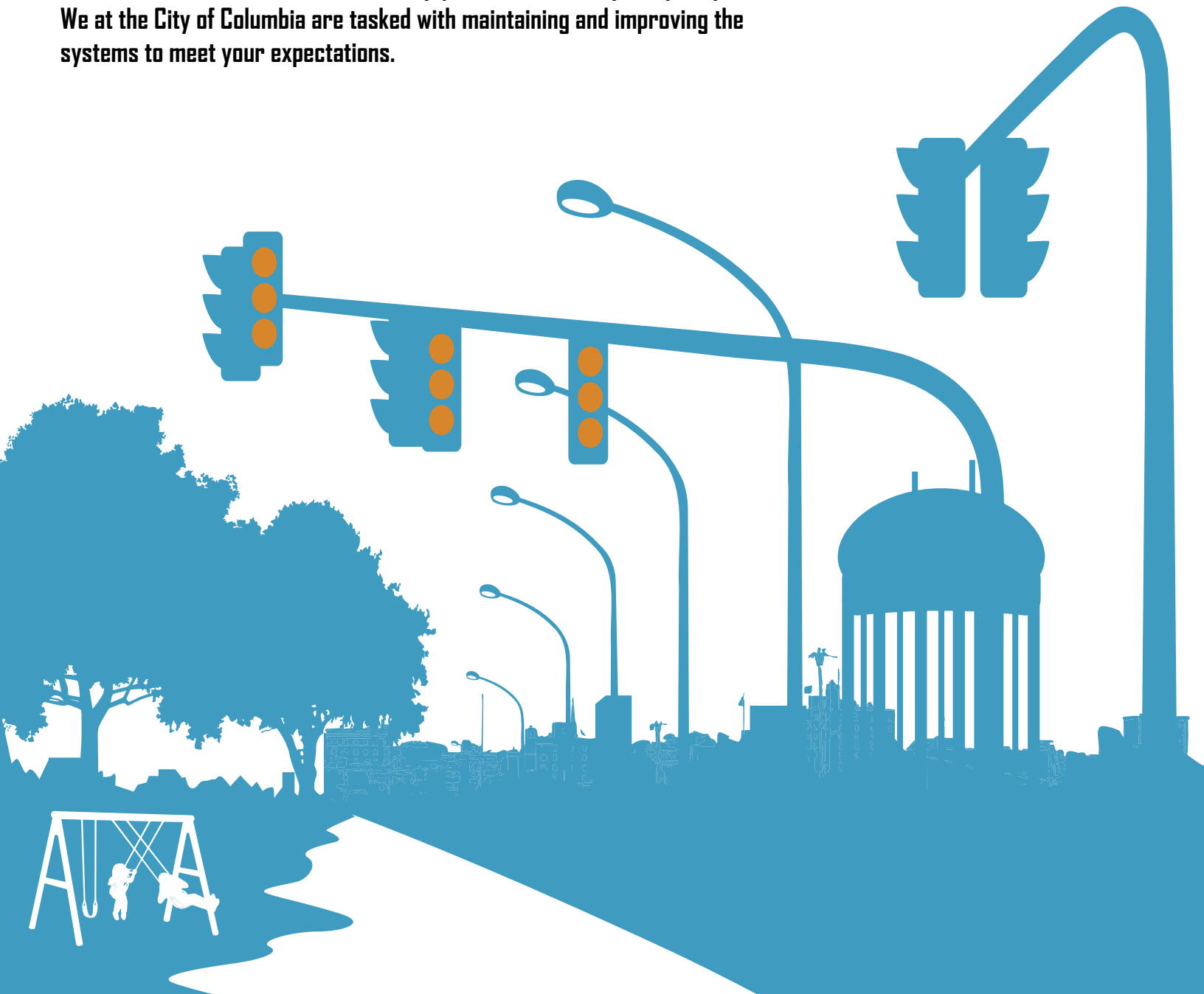
No action required. This report is for informational purposes only.



City of
Columbia,
Missouri

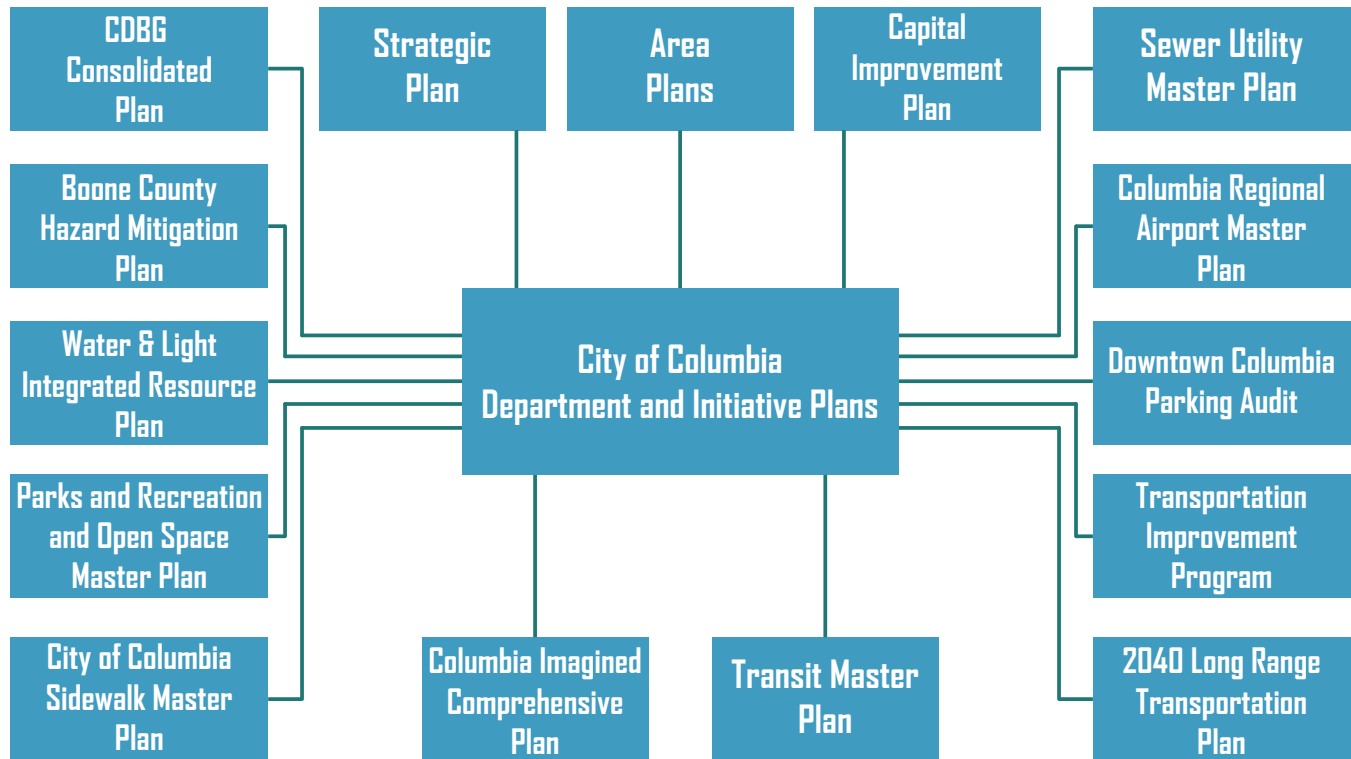
2015 ANNUAL Infrastructure Report

Infrastructures are a network of systems. They can be the roads or trails you use for transportation. They can be the wires that bring you electricity. We are connected by our infrastructure. It is what makes us a community and everyone contributes to its success. You want the service provided to be accessible, safe, reliable, reasonably-priced and add to your quality of life. We at the City of Columbia are tasked with maintaining and improving the systems to meet your expectations.



PLANNING FOR INFRASTRUCTURE





City of Columbia departments have multiple plans to follow for development and maintenance of infrastructure. Guiding the direction of infrastructure comes from the City of Columbia Strategic Plan, federal and state mandates and local planning resources such as Columbia Area Transportation Study Organization (CATSO) and the Capital Improvement Program. In addition, most departments have plans in place for the infrastructure they develop and maintain. Examples of some of those:



WHAT IS A CAPITAL IMPROVEMENT PROGRAM?

The City of Columbia's Capital Improvement Program (CIP) is a five-year plan for investments in infrastructure. The CIP also includes facilities and equipment that supports future infrastructure needs. Projects within the CIP are intended to reflect the community's values and goals, and the overall policy goals of the City Council including existing citywide long-range plans. City departments with infrastructure projects review the CIP throughout the year to plan work flow and make adjustments as needed for future needs.

CIP projects and funding are reviewed by department staff members, the Finance Department and the City Manager's Office. In many cases, there are citizen advisory committees involved in the review process. The City Council has the final say on the CIP projects and budget after receiving feedback from the public at a series of public hearings.

- 
 Columbia Water & Light uses a combination of revenue collected through rates and from voter approved bond funds to pay for CIP projects. No tax revenue is used for water or electric projects.
- 
 Parks and Recreation projects are mainly funded through the one-eighth cent Park Sales Tax, which was renewed by voters in Nov, 2015 for six years. Other CIP funding sources may include Recreation Service User Fees and Golf Course Improvement Fees, which are comprised of recreation fees paid by users.
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 Public Works infrastructure needs are financed in a number of ways. A dedicated sales tax funds road maintenance and minor projects, airport and COMO Connect (transit) needs.
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 Development fees and utility fees help fund sanitary sewer and stormwater. Bonding funds large projects such as major roadway and major sewer.

PARKS AND RECREATION



In November 2015, citizens of Columbia approved an extension of the Park Sales Tax, which will provide \$18 million in funding for park renovations, new park development and trail construction over the next six years.

IMPROVEMENTS

Sports Lighting Installation 4 tennis courts at Cosmo-Bethel Park	2 New Playgrounds Parkade Park and Shepard Park	Lake of the Woods Golf Course Tournament Shelter
Water Play Structure Albert-Oakland Family Aquatic Center	MKT Trailside Building Renovations to the restroom facilities and upper level event rental space	

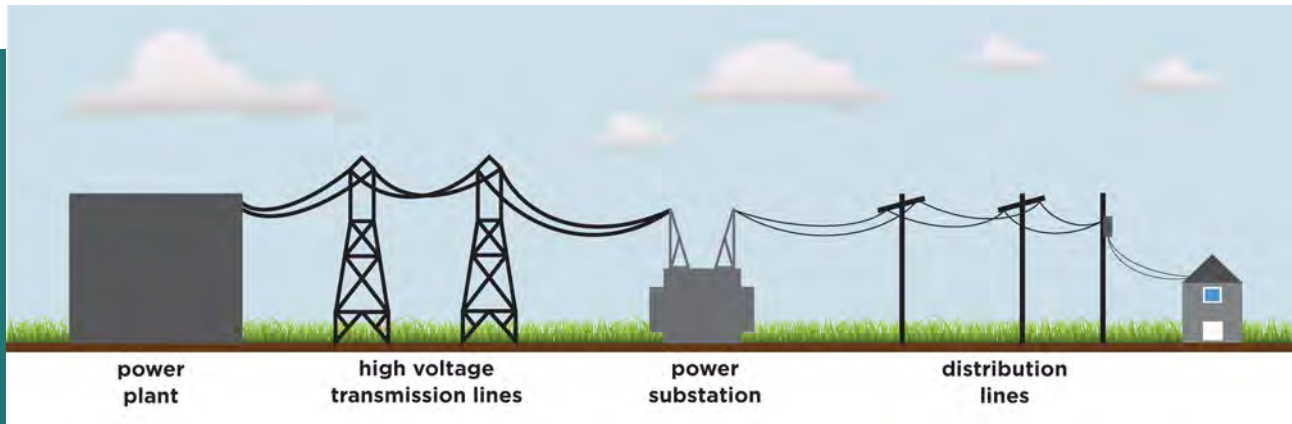
WHAT'S NEW IN 2016?

- Strawn Park development including an 18-hole championship level disc golf course, 20-car parking lot and a small shelter.
- Douglass Park phase two improvements including the construction of a new medium-sized shelter, playground replacement, lighting improvements and a 4,000-square-foot skate spot.
- Nifong Park improvements including the construction of a new medium-sized shelter, playground, small shelter, parking lots and lighting.
- Atkins Park phase three improvements including the construction of the final two fields with lighting, additional parking, irrigation pump station, playground and batting cages.

2015 HIGHLIGHTS

- Barberry Park development including construction of a small shelter, playground, basketball court, open playfield, pond improvements and walkways.
- Gans Creek Recreation Area development including the completion of five multi-purpose athletic fields, parking lots and LED parking lot lighting.
- Douglass Park phase one improvements including the completion of the outdoor amphitheater, small shelter, new porous paver parking, walkways and an open playfield.
- Downtown Optimist Park improvements including the construction of a small shelter, playground replacement, ADA accessible walkways, water fountain and swing set.
- Woodridge Park improvements including the addition of an inclusive playground, renovations to the basketball court and a 0.4 mile concrete walking trail in the park.

ELECTRIC SYSTEM



The local electric generation facility assets include: the **power plant** - rated at 86 megawatts, this facility used coal, waste wood and natural gas to generate 3.4 percent of Columbia's electric needs; the **energy center** - rated at 144 megawatts, this facility used natural gas to generate 1.1 percent of Columbia's electric needs; **landfill gas** - rated at 3.1 megawatts, this facility used gas created from decomposing waste to generate 1.5 percent of Columbia's electric needs; and **diesel back-up generators** - rated at 12.5 megawatts.

NOTE: External power sources (coal, natural gas, wind, landfill gas) help meet the rest of the 325 megawatts needed for the Columbia system electric load.

In 2015, the number of electric customers grew 1 percent for a total of 48,437. Customers used 1.15 million megawatt hours of electricity. The average monthly residential customer usage was 730 kilowatt hours.

HOW DOES THE ELECTRICITY GET TO ME?

99.962% Time of electricity available (up from 99.876%)	70 Miles of transmission lines (no change)	282 Miles of overhead distribution lines (added 31 miles)
554 Miles of underground distribution lines (added 31 miles)	11,800 Distribution transformers (added 66)	

2015 HIGHLIGHTS

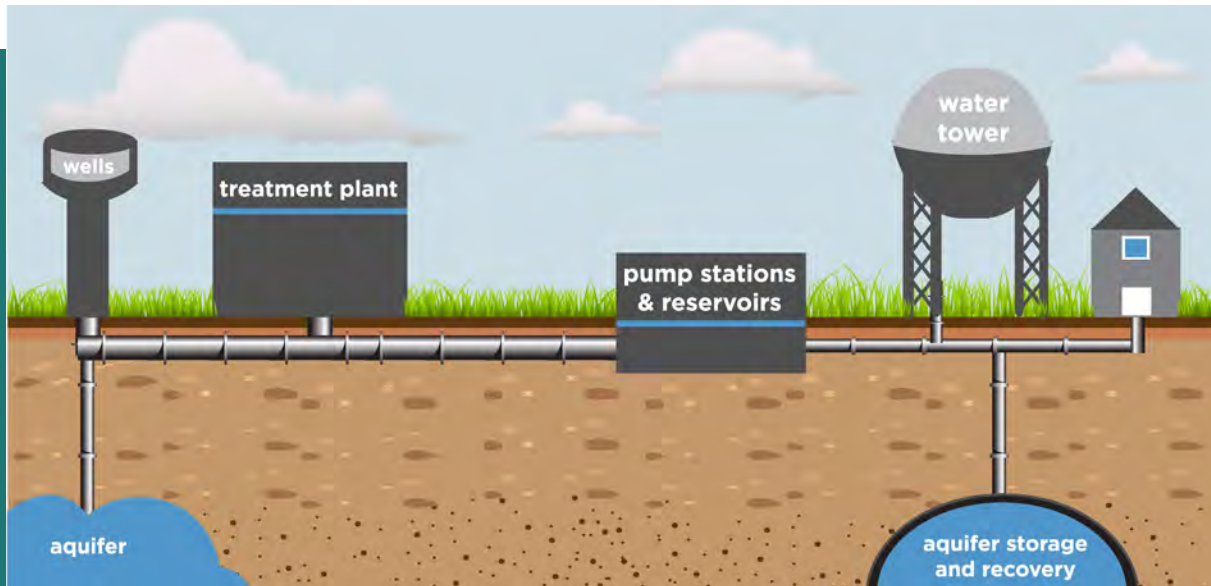
- Stopped burning coal at the local plant due to new federal emissions and coal combustion residue regulations.
- Added a new electric feeder circuit from the Rebel Hill substation to provide more electricity for the central city area.
- Added solar panels on City-owned property on Ash and Bernadette. The system will produce 335,000 kilowatt hours a year. This is equivalent to the power used by approximately 34 homes in one year.
- Voters approved a \$63.1 million bond issue to fund replacement and upgrades to the electric infrastructure, additional transmission lines, a substation, system modernization and an additional landfill gas electric generation unit.

Infrastructure Partners:
University of Missouri, Boone Electric and City of Fulton

WHAT'S NEW IN 2016?

- Upgrade existing natural gas generating units at the power plant and explore biomass fuel options to increase renewable energy generation.
- At the City Council's request, another public hearing will be held to revisit the new electric transmission line route decision made in 2013. After the route has been finalized, the transmission line pole placement design and possibly easement acquisitions will be presented to the City Council.
- Continue work on a new substation on the south side of Columbia for increased reliability and to meet electric system needs.
- Begin a Columbia Community Solar project. The program will be similar to having solar panels on a person's property, only Columbia Water & Light will purchase, install and maintain the system.

WATER SYSTEM



Columbia's water is pumped from 15 wells that tap an alluvial aquifer in McBaine, MO. Softened, filtered, and disinfected water is pumped from the treatment plant to reservoirs at Columbia's three pump stations. The water is then pumped throughout the city to consumers. It is stored at towers and reservoirs for times of high demand or fire fighting.

In 2015, 47,917 water customers used 4 billion gallons of water. The average monthly residential customer usage was 4,527 gallons in the summer and 3,796 gallons during the rest of the year.

HOW DOES THE WATER GET TO ME?

689 Miles of water pipes	7 Almost seven miles of water mains were installed in 2015	5,891 Total hydrants, 101 new locations installed and 26 replaced
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Infrastructure Partners:
Consolidated water districts 1,4 & 9
and University of Missouri

Why does my water have more of a chlorine taste in the summer?

The Department of Natural Resources requires that Columbia switches to the chlorine disinfection process from the chloramine (chlorine + ammonia) for a little while each year to reduce nitrification in the pipes.

2015 HIGHLIGHTS

- Completed almost 9,000 work orders that included water main repairs, meter leaks and replacements.
- Completed installation of a new 8-inch and 12-inch water pipe on Texas Avenue. The upgraded water line increases the amount of water that can be delivered to the area and for firefighting purposes while increasing the reliability of water service in the area.
- Started a water integrated resource plan and a condition assessment of the water treatment plant to determine whether the water treatment plant operations are to be expanded or if it should be delayed and summer irrigation restrictions are implemented.

WHAT'S NEW IN 2016?

- Complete drilling new wells for additional water supply.
- Replace older water main line on the Business Loop from Old Highway 63 East to Eastwood Circle to increase reliability of service in the area.
- Install a 16-inch water transmission line on Oakland Church Road to create a redundant feed for a storage tower and help with water service reliability.

STREETS, SIDEWALKS AND TRAILS



In August of 2015, voters approved a Capital Improvement Sales Tax extension which will provide funding for over \$66 million in roadway maintenance, sidewalk improvements, traffic safety projects, traffic calming, historic brick street renovations and landscaping between 2015 and 2025.

IMPROVEMENTS

20 Miles of streets "milled and overlayed" providing a new asphalt driving surface and roadbed improvements	40 Miles of streets maintained by various sealing methods designed to extend the life of driving surfaces at 1/3 the cost of major maintenance such as mill and overlay	2 Miles of new trails constructed to provide connectivity for non-motorized transportation users as part of Columbia's overall transportation plan
2,785 Feet of sidewalks added in 2015	1338.29 Lane miles of roadway now maintained by Public Works	

WHAT'S NEW IN 2016?

- Forum Boulevard Trail and Pedestrian Bridge is scheduled to be under construction in the spring of 2016.
- Design work will begin for intersection improvements to the intersections at Forum and Green Meadows, Chapel Hill and Fairview, Old Mill Creek and Vawter School, Sinclair Road and Nifong Boulevard, and at Parker Street and Vandiver Drive.
- Design work is scheduled to begin in 2016 for the Ballenger Lane improvements between Ria Street and Mexico Gravel Road; as well as design work for the Discovery Parkway extension and improvements on Nifong Boulevard between Providence and Forum.
- Hominy Branch Trail, east section, is scheduled to be under construction in the summer of 2016.

2015 HIGHLIGHTS

- Completed the College Avenue Safety Enhancement Project.
- Completed the Wabash to Hominy Bike Boulevard and stripped 3.6 miles of new bike lanes.
- Completed new sidewalk on sections of Bernadette and Fairview Road.
- Began construction on phase three of the Scott Boulevard Corridor between Vawter School Road and State Route KK. Construction scheduled to be complete by late summer of 2016.
- Installed the first audible pedestrian crosswalk in Columbia at the intersection of East Broadway and College Avenue.
- Completed the 1.74 mile Grindstone Creek Trail from Grindstone Nature Area to Maguire Boulevard.

TRANSPORTATION



COMO Connect continues to evaluate and react to passenger requirements after the successful launch in 2014. Passenger counters and re-branding of the smartphone app are two technology enhancements in 2015. Columbia Regional Airport continues to see soaring passenger demand with over 130,000 passengers passing through COU.

IMPROVEMENTS

63,000+
enplanements at
COU (highest since
1978)

130,000+
total passengers
passed through COU

1.6 million
rides provided by COMO
connect, Fixed routes, Tiger
Line, & ParaTransit

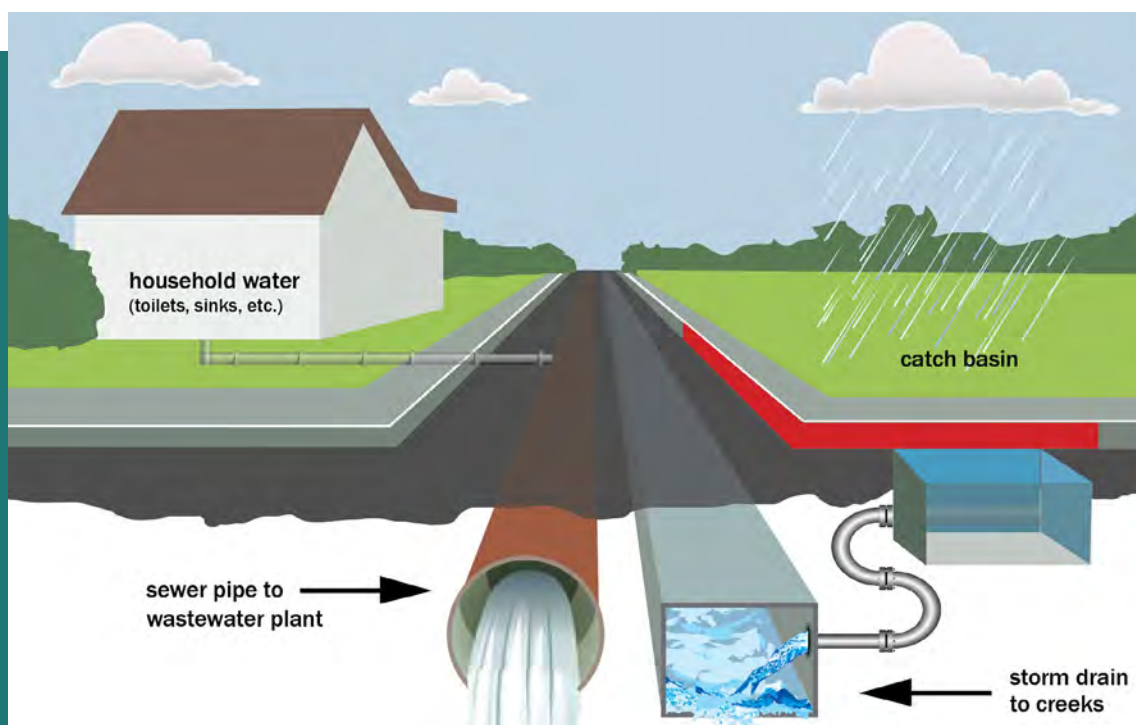
WHAT'S NEW IN 2016?

- Columbia Regional Airport Terminal Area Master Plan is scheduled to be completed providing direction on future terminal needs.
- COMO Connect will work with a consultant to better understand the needs of the community regarding public transportation.
- Columbia Regional Airport will begin the next phase of infrastructure improvements with the design of the new crosswind runway.
- COMO Connect will begin the building phase of new passenger shelters on various routes at high demand stops.

2015 HIGHLIGHTS

- Columbia Regional Airport sees highest passenger counts since 1978.
- Load factors on flights to and from Columbia Regional Airport continue to average 80 percent or better.
- COMO Connect developed plan with City council approval for the installation of 20 bus shelters on selected routes and stops.
- COMO Connect becomes the first transit agency in the state of Missouri to place a fully electric bus in service realizing tremendous fuel savings.
- Columbia Regional Airport opens new restrooms in the secured passenger area and a new snack bar, enhancing the experience of passengers at COU.
- Columbia Regional Airport completes the Runway Intersection Improvement Project, the first phase of improvements to both the main and crosswind runways.

SEWER AND STORMWATER



The Sanitary Sewer Utility and the Storm Water Utility continue to face challenges related to aging infrastructure. Specifically, the sanitary sewer system continues to experience problems due to inflow and infiltration and the resulting sewer overflows, backups into buildings and treatment plant operational challenges. The storm drainage system continues to have many failures of corrugated metal pipes that have been in service for longer than the expected lifespan for this material.

2015 HIGHLIGHTS

- In April, Columbia citizens voted to approve increases for the Storm Water Utility. This is the first rate increase for the Utility since it was originally approved in 1993. The additional funding will help with completing CIP projects and providing additional maintenance on the existing system.
- Sanitary sewer rehabilitation work to reduce the volume of inflow and infiltration into the system was completed in two additional sewer basins and initiated in three additional basins. Flow monitoring will be performed to determine effectiveness of the work in reducing inflow and infiltration.

IMPROVEMENTS

975 feet of sewer pipe replaced	241 manholes rehabilitated or adjusted	23 storm drainage inlets repaired or replaced
28,646 feet of sanitary sewer line rehabilitated		1,383 feet of storm drainage pipe replaced

WHAT'S NEW IN 2016?

- Construction should begin on the first three Flat Branch Relief Sewer projects, the Upper Hinkson Outfall Sewer project, the Upper Meredith Stream Bank Stabilization project, Rollins Road at Rock Creek Culvert Replacement and several private common collector elimination projects.
- Design work will be completed for the Henderson Branch Sewer which will provide sewer service to the Midway area and allow the elimination of existing facilities that discharge into Henderson Branch Creek.

Infrastructure Partners:

University of Missouri, Boone County and Boone County Regional Sewer District

BUILDING PERMIT GROWTH AND OUTLOOK

Building permits within the City and metro area are one of the data sources indicating how and where our community is growing. New development around the periphery coincides with new infrastructure and areas of future infrastructure investment. Redevelopment of existing areas within the City contributes to the planning of infrastructure upgrades and investment. Yellow “Certificate of Occupancy” permits indicate that the construction is complete and can be in use. Blue “Approved” permits in the 2014 and 2015 map indicate current or soon to start construction. Visit the new [Community Dashboard](#) map to view current information about planning cases and construction.

*Columbia’s building permits are reported by fiscal year, which runs October through September. Boone County permit data is shown for the calendar year, January through December.

City of Columbia Building Permit Application Status:

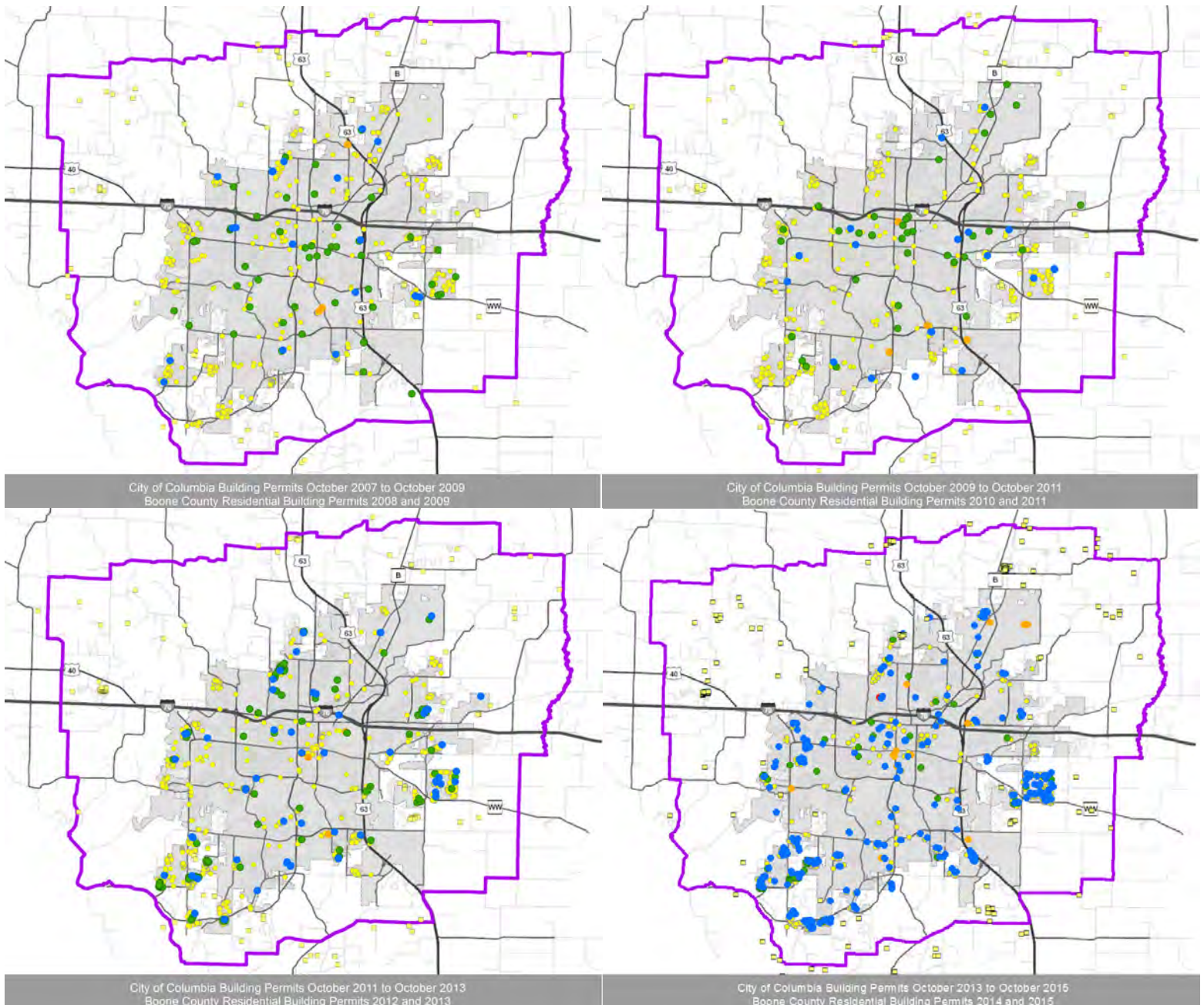
- Approved
- Certificate of Occupancy
- Permit Expired or Closed
- On Hold
- Application Received

Other Map Data:

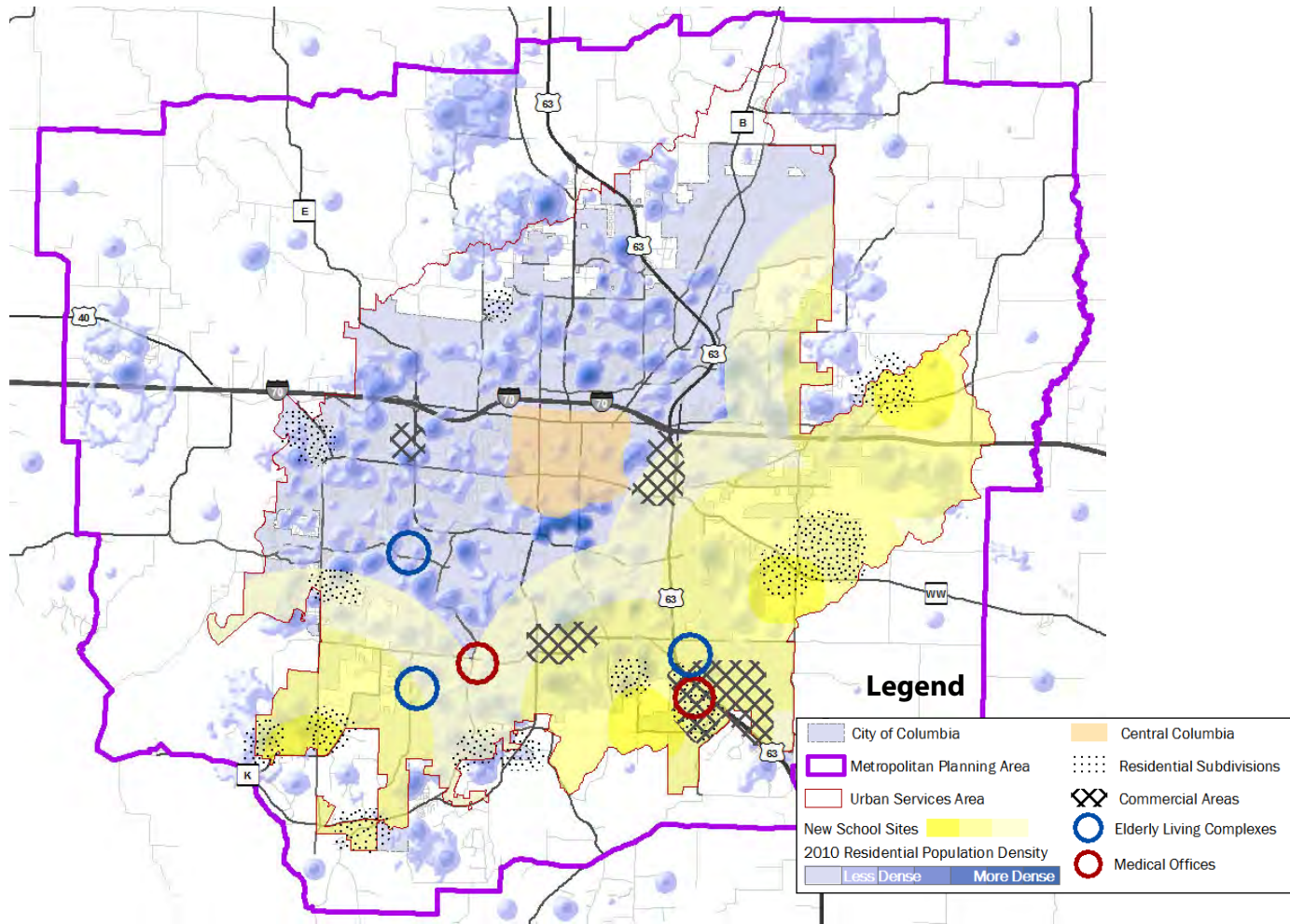
- Boone County Residential Permits 2008-2014 in the Metro Area
Source: Boone County Resource Management

□ Metropolitan Planning Area

Basemap contains data from the City of Columbia and Boone County.



PROJECTING FUTURE INFRASTRUCTURE



Real estate activity - the buying and selling of property, including decisions to invest and build - is generally not something that the City directly controls. Through infrastructure planning, scheduling and construction of public improvements, however, the City indirectly influences these decisions. Land use plans, the zoning ordinance, and the subdivision regulations further express the City's policies regarding location and intensity of development, and the infrastructure required to connect services to new lots as they are created.

In 2016 there are a number of projects "in the pipeline." Some form of preliminary approval - a site plan, a subdivision plan or land disturbance permits - is an indication that development will follow.

The place for urban style development is central Columbia. South of downtown, the U Centre development has broken ground and will be under construction in the new year. Located on Providence and Turner just 500 feet from the MU campus, the development consists of apartments for students and a parking structure. A six story mixed use building is underway at Ninth and Elm where the new Shakespeare's Pizza will relocate. Though not firm, City staff are hearing of interest in additional housing units and possibly a hotel in the downtown. A number of building owners in the downtown have indicated an interest in expansions of existing buildings.

In 2016 there will be continued residential building activity in many parts of Columbia, with particular emphasis on the south and southwest sides of the City. A new elementary school site off Rolling Hills Road in the Vineyards Subdivision may induce more home buildings in the east Columbia area, including Old Hawthorne, which began 10 years ago and continues to add homes. Improvement of Scott Boulevard and Beulah Ralph Elementary School near Thornbrook is stimulating additional residential activity in subdivisions such as Creek Ridge, Steeplechase Estates, Wyndham Ridge, The Gates and Copperstone.

Other areas: The Somerset Village development near Battle High School is likely to begin some residential construction in 2016. To the north, the large Vanderveen Estates subdivision is adding a phase on its west side (renamed Willow Falls). New commercial buildings are expected on the east and west sides of town in established commercial centers; west of Stadium Boulevard and in the Conley Road area for example. A number of housing complexes for senior citizens have been completed in 2015 or are in progress such as Bedford Place along Nifong and assisted living the Heritage Village area; the latter involves extension of Southampton Drive to Sinclair Road. Medical offices and clinics are underway in the Boone Hospital south campus at Nifong and Forum and in the Discovery development at Discovery Parkway and U.S. 63.

In Summary: The outlook for 2016 is for the continued buildout of existing planned and subdivided areas, with a strong focus on home building in the southern region of Columbia and mixed use in the downtown.