

# OFFICE OF THE CITY ENGINEER 2008 ANNUAL REPORT



## **On the cover - June 6, 2007 Flood (Top to Bottom)**

### **State Road 46 West**

*Photo courtesy Albert Skaggs*

*Photo taken June 9, 2008*

Flood waters are receding, but State Road 46 remains closed. Structures constructed under current flood regulations are protected (Wal-Mart, Menards, Walgreens, Bob Evans). Some buildings, such as McDonalds, which were constructed before these regulations, are inundated by flood water.

### **CR 400 North**

This roadway is a chronic flood problem, and this event was no exception. Several areas of the roadway on the downstream side washed away. Flood waters washing over the roadway delaminated the surface course from the remaining roadway base.

### **Joseph Anthony Legal Drain under Indianapolis Road**

Floodwaters rushing through the structure washed the supporting soil out from under the spread-type footer that held up the east end of the structure. The resulting structural failure caused the subsidence shown in the photo and the inevitable failure of the pavement.

### **22<sup>nd</sup> and Hawcreek**

The concrete headwall and twenty foot section of pipe were undermined by high velocity floodwaters. The settling headwall separated the upstream pipe from the remainder of the storm sewer. A new section of pipe, a precast headwall, and class II rip rap now protect this storm sewer outlet.

### **Pleasant Grove and Cummins Child Development Center**

*Photo courtesy Albert Skaggs*

*Photo taken June 9, 2008*

Mud lines in parking lots and streets help document the high water boundary in this area. Many homes in the Pleasant Grove area were damaged to the point of no recovery. Despite being constructed two feet above mapped 100 year flood elevation, the CCDC was inundated by flood waters. The building was abandoned as a center for children, but is being renovated as an office building.

## 8<sup>th</sup> Street Relocation / Roundabout

The City Engineer's office issued notice to proceed to Milestone Contractors, L.P. on February 25, 2008 to begin construction of Columbus' first modern roundabout. The project actually began development in late 2004, as the need to eliminate 8<sup>th</sup> Street between Lindsey Street and Indianapolis Road became apparent to accommodate the future construction of Mill Race Center and create a gateway into Columbus. On March 1, 2005 Traffic Engineering Inc., teamed with Janssen & Spaans Engineers, was selected to conduct a study for the elimination of 8<sup>th</sup> Street and resulting traffic redistribution and intersection reconfigurations. The study determined that a modern roundabout would be the most efficient and cost effective solution to achieve the project goals.



**Roundabout Construction**



**Brick Paver Truck Apron**

On November 18, 2005, Janssen & Spaans Engineers, teamed with Traffic Engineering Inc., was given notice to proceed to develop construction plans for the modern roundabout option recommended in the study. Although the roundabout is well suited for the complex geometry, the traffic control for the rail road makes this roundabout a special application. The pedestal mount signals on the Brown Street approach are controlled by a preemption system linked to the rail road. When a train approaches, the signal turns red and prevents traffic from cueing past the 11<sup>th</sup> Street entrance while allowing the remainder of the roundabout to function.

The project is substantially complete at a cost of \$1,542,858.49. A landscaping alternate was bid for the project, but not awarded due to budget constraints. Accommodations were made in the design for future landscaping on the project if the opportunity arises.

As anticipated, operational difficulties were experienced during the first week after the roundabout was open to traffic. Since then, the intersection has been operating very efficiently, especially at off-peak times.

## Rocky Ford Road

The Rocky Ford Road project was declared substantially complete at a ribbon cutting ceremony on a blustery November 19<sup>th</sup> morning. In attendance were representatives from the City of Columbus, project owner, the Indiana Department of Transportation, providing oversight for the Federal Highway Administration, and Milestone Contractors, L.P., the general contractor. The completion of this project marked the end of Phase Three for a four phase project. Phase One was the new bridge over Haw Creek and the realignment of Marr Road completed by Bartholomew County in 2001. Phase Two was the extension of Taylor Road from Rocky Ford Road to 300 North completed by the City in 2002.



**Rocky Ford and Taylor Road**

The improvements consist of converting a twenty foot wide street with a rural cross section to a four lane street, with suburban construction including sidewalks, accessible ramps, curb & gutter, and storm sewers. The intersection with Marr Road was realigned to reduce the skew, improving visibility and safety. Turn lanes were added at the intersections with Marr Road and Taylor Road to increase intersection capacity and efficiency.



**Rocky Ford and Marr Road Looking Northeast**

In order to accommodate the intersection improvements, a significant portion of Marr Road was realigned. Approximately 2700 feet of Marr Road was reconstructed to current design standards. South of Rocky Ford Road retained the suburban cross section of the adjacent Rocky Ford Road, while the northern portion utilized a rural cross section with shoulders and roadside ditches.

The project was completed at a cost of \$4,292,450.76 over two construction seasons. The roadway is an extension of a vital east-west corridor for the City. Plans are currently being developed to improve Rocky Ford Road from Taylor Road to Talley Road.

## Marr Road

A preconstruction conference was held on May 16, 2008 to coordinate the construction of the Marr Road project with Reith Riley Contractors, the Indiana Department of Transportation, Janssen & Spaans Engineers, City of Columbus Engineer's office, and affected utilities. The project consists of improvements of the existing 18 foot wide roadway to a roadway with two 12 foot travel lanes; 8 foot paved shoulders, and well defined roadside ditches.



**Bulldozers Create New Alignment for Marr Road**

The completion of this project is the culmination of a multi-phase improvement to the northeast portion of the City. The most noteworthy feature of this project is the realignment of Marr Road. Before construction, Marr Road terminated at Haw Creek where the old bridge was removed as part of the Phase I project and made a ninety degree right turn to 300 North. This project eliminated the sharp curve and replaced it with a super elevated, 600 foot radius curve.

The project was also coordinated with the construction of Sycamore Bend Subdivision. Portions of the storm water infrastructure were installed to accommodate the future roadway construction, and construction plans were modified in time to accommodate the public street approach for Marr Drive. The project is substantially complete at a cost of \$713,000.00. The weather closed in on Reith Riley before a minor grading issue was resolved, so that will be addressed before the project is officially complete.

## Drainage Repairs

In February 2008, Milestone Contractors, L.P. was awarded a project to repair inlets in the Breakaway Trails Subdivision with a low bid of \$41,994. Milestone removed and resealed 36 castings, and removed and replaced 378 linear feet of curb and 250 square feet of drive apron. They patched 355 square yards of asphalt.



**Brookside Drive Storm Sewer Installation**

King's Trucking and Excavation, from Seymour, completed a Storm Sewer Improvement project at Brookside Drive in April. They were awarded the contract in October 2007 with a low bid of \$36,542. In this neighborhood, 315 linear feet of corrugated pipe had deteriorated and caused multiple sink holes. King's installed 315 linear feet of 30" HDPE pipe and 2 new inlet structures.

## Drainage Repairs continued



**Inlet Casting Prior to Repair**

In April 2008, Excavation Plus completed a \$33,600 drainage repair quote in Presidential Parks. The quote included work at 18 different locations. Excavation Plus removed and resealed 15 castings, removed and replaced 310 linear feet of curb and 75 linear feet of damaged subsurface drain, patched 125 square yards of asphalt, installed one accessible ramp and repaired several pipes.

In May 2008, Milestone Contractors, L.P. was awarded the Carr Hill Road Drainage Improvement Project with a low bid of \$48,895. Milestone installed approximately 900 linear feet of curb and gutter along the east side of Carr Hill Road, west of the I-65 Bridge, in order to improve drainage and address safety concerns in this area.



**Curb on Carr Hill Road**



**Milling and Patching on 25<sup>th</sup> Street**

With a low quote of \$45,389, a Miscellaneous Drainage Repair Project was awarded in June to Excavation Plus. The quote consisted of repairs at 16 locations throughout the City. Excavation Plus repaired several sinkholes and inlets and then milled and patched deteriorated asphalt areas and torn up pavement areas along Washington Street, Pintail in Tipton Lakes, 25<sup>th</sup> Street and 27<sup>th</sup> Street.

## Drainage Repairs continued

The Streamside Court Inlet Box Replacement quote was awarded to King's Trucking and Excavation in September 2008. King's was the low bidder with a quote of \$6,130. They removed and replaced a collapsed inlet structure which was discovered after the June 7 flood.



**Sinkhole on Streamside Court**

Also in September, Excavation Plus was awarded a Miscellaneous Sinkhole Repair Quote with a low quote of \$13,230. This quote was to repair sinkholes and failing inlets at 5 locations around the city.



**New Storm Sewer on South Drive**

In November, King's Trucking and Excavation was awarded a Drainage Improvement Project at South Drive in Sandy Hook. This work corrected drainage issues and flooding in the street. King's installed almost 500 linear feet of 12" storm sewer pipe and 4 inlets for a quote of \$32,500.



**Goeller Boulevard and State Road 46**

The last project of 2008 was a Drainage Improvement Project at State Road 46 and Goeller Boulevard. C.A.S.E. Construction was awarded the job with a low quote of \$14,520. C.A.S.E. removed and replaced a 20' X 25' portion of asphalt and installed 160 linear feet of underdrain to correct a ground water issue.

## **Crack Seal Program**

Reece Seal Coating was awarded the 2008 crack sealing contract in February with a low bid of \$53,262. Crack sealing consists of cleaning, preparing and sealing pavement joints and random pavement cracks on selected streets throughout the city. Reece crack sealed 8.53 lane miles to add longevity to the City's streets. Sealing cracks in city streets increases pavement life, allowing a longer time between more intense street maintenance, such as overlay.

## **Infrastructure**

The City's infrastructure continued to expand in 2008 with the acceptance of Sycamore Bend Section II, South Park, Villas of Stone Crest, Tipton Lakes Boulevard, Brookfield Place, Wildflower Estates, Woodside Northwest, Stonebridge of Northbrook Phase V, Broadmoor North Phase II, and Aton's Commercial Park. This growth added approximately 22,441 linear feet (4.25 miles) of new streets to the city's infrastructure.

## **Indiana Department of Transportation**

INDOT continues to implement their Major Moves Plan which outlines construction projects over the next ten years. Three Major Moves projects are programmed in Columbus.

INDOT owns all rights-of-way necessary for the US 31 project, which is scheduled to begin construction in 2009. The City coordinated the acquisition of right-of-way from the Circle K gas station at US 31 and 17th Street for both the City's 17th Street project and INDOT's US 31 project. The project includes four travel lanes with a center turn lane, new concrete curb and gutter, new storm sewer, new sidewalk, interconnected signal equipment, and two new bridges.

State Street is under construction between Marr Road and Mapleton Street. The improvements include four travel lanes with a center turn lane, sidewalk, storm sewer, realignment of Mapleton/Pence Street, new traffic signals at Marr, Gladstone, and Mapleton, and new left turn lanes at intersections.

Improvements are scheduled for I-65 and State Road 58, with the project currently in the preliminary design stage. The exit ramps will be widened to two lanes and the overpass bridge will be widened to add a center left turn lane. In order to improve traffic flow, turn lanes will be added to State Road 58 at the interchange. Access to the gas station and residential property at the Northwest quadrant will be modified to reduce turning movement conflicts in close proximity to the interchange. This project is scheduled for contract in 2010.



## Projects in Development

Also under development are improvements to 17th Street from Central Avenue to US 31. Improvements will include four travel lanes, sidewalk, curb and gutter, storm sewers, and dedicated bicycle lanes. Strand Associates is approximately ninety percent complete with the right-of-way services. Construction is planned for 2009.

Road 200 South between State Road 11 and 150 West is scheduled for improvements. Improvements will include a dual left turn lane, curb and gutter, and storm sewer. Plans are currently being reviewed by INDOT for public hearing approval. Construction is projected to begin in 2010.

Preliminary Engineering continues for the following projects:

- Westenedge from US 31 to Rocky Ford Road – Christopher B. Burke Engineering, LTD.
- Rocky Ford Road from Taylor Road to Talley Road – Strand Associates
- Taylor Road from 25th Street to Rocky Ford Road - DLZ
- Indiana Avenue from State Street to Marr Road – Hannum, Wagle & Cline Engineering

## WalkWorks

*WalkWorks*, the City’s sidewalk replacement program, was established in 1991 to encourage property owners to replace unsafe, deteriorated sidewalks. The City reimbursed property owners \$10 per linear foot of sidewalk, after it was replaced and inspected. During the 2008 construction season, *WalkWorks* replaced approximately 500 linear feet of concrete sidewalk. *WalkWorks* funds were also used to pay for rebuilding 3 alley approaches. In addition, *WalkWorks* contributed \$13,700 to the Community Development Block Grant program.

### City Engineering Staff

- Steve Ruble.....City Engineer
- Steve Rucker.....Assistant City Engineer
- Randy Sims.....Senior Engineering Technician
- Becky Douglas.....Engineering Technician
- Jason Perry.....Engineering Technician
- Aimee Morris.....Engineering Technician

## **National Pollutant Discharge Elimination System (NPDES)**

The NPDES permitting and certification process is designed to improve storm water quality in communities with populations greater than 10,000. In continued efforts to comply with the National Pollutant Discharge Elimination System (NPDES) Phase II storm water requirements for the City, the Engineering staff, various other City departments, and consultant DLZ have been working on the following in 2008:

The Stormwater Management Ordinance in the City of Columbus, Indiana was adopted by the Columbus City Council and went into effect July 1, 2008. This ordinance re-established minimum erosion and sediment control requirements and established minimum stormwater management requirements and controls. This ordinance called for the creation of a Stormwater Design Manual. The City's Stormwater Design Manual which was adopted June 24, 2008 by the Board of Public Works and Safety and went into effect July 1, 2008, sets forth minimum standards for development activities which require a permit. The purpose of the design manual is to establish design requirements and guidelines for use in complying with the City's stormwater quality and quantity requirements. It establishes minimum stormwater management requirements and controls to protect and safeguard the general health, safety and welfare of the public.

The intent of the Stormwater Illicit Discharge Ordinance, which originally went into effect January 1, 2007, is to protect and enhance water quality of our water bodies in a manner pursuant to and consistent with the Federal Clear Water Act. This ordinance was amended on June 17, 2008 to allow sump pumps to discharge into storm sewer systems.

In an effort to continually meet Public Education and Outreach goals, City engineering staff members participated in Engineers Week at a local elementary school in February. Demonstrations were made to over 500 children about the effects of pollutants on our stormwater. Also, flyers outlining the effects of Fats, Oils and Grease on stormwater were distributed at the Ethnic Expo celebration in September.

As a part of the ongoing NPDES training requirements, City engineering staff members attended training sessions and webcasts in 2008. In October of 2008 the City Engineer's Office received notification that its Rule 13 Renewal Permit and Storm Water Quality Management Plan had been accepted by IDEM.

## Permitting

The City Engineer's office administers several types of permits to control day to day impacts to infrastructure and traffic. Applications for permits can be picked up in the Engineering office, or can be accessed on-line. There is no charge for making these permit applications to the Engineering office.



**The Commons Demolition**

A Special Use of Right-of-Way permit is required any time the right-of-way is going to be encumbered. Typical applications are for street closures, closure of sidewalks, or parking spaces. In 2008, **231** applications were processed, including requests for the Commons demolition, presidential candidate visits, blood drives, neighborhood block parties, City special events, parades, benefit walks, tree trimming, and the Columbus City Utilities sanitary sewer project.

A Permit to Excavate in a Public Street, Alley or Right-of-Way is self explanatory. Applicants for this type of permit are generally accessing utilities that reside within the right-of-way of a City street. Some utilities lie under pavement necessitating a street cut to access the utility. Although there is no cost to make the permit application, contractors are required to bond their work for a period of three years to protect the City infrastructure which they have impacted. The City Engineer's office processed **271** permits to excavate in a public street, alley or right-of-way in 2008.



**Parking Garage Storm Sewer Connection**

Improvement in the Right-of-Way Permits are required for work performed in the right-of-way that does not fall under the Permit to Excavate in Public Street, Alley or Right-of-Way. Typical applications are for driveway or curb repairs. Improvements are required to meet City standards and the Engineer's office inspects all work. In 2008, **45** Improvement in the Right-of-Way Permits were processed by the City Engineers office.

The Engineer's office provides technical assistance to other City departments to facilitate, administer, or complete projects. The Engineer's office provided the following assistance in 2008:

## Redevelopment Commission

- Commons Mall – Jackson Street Connection
- 4<sup>th</sup> Street Storm Sewer

## Mayor's office

- Vision 20/20 Committee
- Technology Task Force
  - Conduit Relocation for US 31 project

## Community Development

- Block Grant Sidewalk Project
- Veteran's Day Parade
- Ethnic Expo
- Garden plots

## Parks and Recreation Department

- Festival of Lights Parade
- Mill Race Center

## Fire and Police

- Mapping and Diagrams

## Planning Department

- Plan Commission Member
- Subdivision/Plat Review Committee
- Improvement plan and Drainage review

## Bartholomew County Emergency Management

- Multi-Hazard Mitigation Plan

## Columbus Area Metropolitan Planning Organization

- Steve Ruble – 2008 Interim MPO Director
- TIP amendments
- 2009 – 2010 Statement of Work



Jackson Street



Ethnic Expo



Festival of Lights Parade

## **2007 INTERSECTION ACCIDENT REPORT CITY OF COLUMBUS**

### **Introduction**

The **2007 Intersection Accident Report** is a summary of intersection traffic accident data for the City of Columbus during the five-year period from 2003 through 2007. This report is intended for use by various City agencies and by the Indiana Department of Transportation to plan intersection improvements, changes in intersection control, and changes in enforcement. Conclusions should not be drawn without an examination of the accident reports for each intersection. It should also be noted that increases or decreases in number of accidents in a single year may not be significant, but trends over several years are usually more significant.

### **Summary**

The intersection of National Road and 25<sup>th</sup> Street was the most frequent site of accidents in 2007 with 38. Between the years 2003 and 2007, the number of accidents has fluctuated between 38 and 49, with a five year average of 41.4. This intersection also has the highest five year average. Although natural fluctuations exist in the five year data, 2004 is the highest accident year by seven accidents. In 2005, INDOT added left turn phases to the signal at this intersection on the 25<sup>th</sup> Street approaches. The current total is still well below the all time peak of 62 accidents in 1990.

The intersection of National Road and 10th/Taylor was the second most frequent accident location. Commercial development on three of the four corners of the intersection is contributing to higher traffic volumes for this intersection. This year's total of 36 accidents is eight more than the 2006 total.

The 25<sup>th</sup> Street and Central Avenue intersection was the third most frequent accident location. Although the number of accidents at this location actually decreased from 36 in 2006 to 34 in 2007, the intersection was still above its five year average of 32.6.

Most of the intersections, where 10 or more accidents occur per year, have been improved or are being considered for improvements. The highest accident count at an intersection not scheduled for improvement is 17 at 25th Street and Hawcreek Avenue.

### **Intersections to watch:**

- 8<sup>th</sup> Street and Central Avenue increased 13 accidents from its five year average and produced 18 more accidents than last year.
- Rocky Ford Road and Central Avenue increased to 8 accidents more than its five year average and had 10 more accidents than last year.
- State Road 46 and Morgan Willow Trace produced 9 accidents this year, which is 6.2 more than its average and 7 more than last year.

### **Most improved:**

- National Road and Washington Street had 12.4 fewer accidents in 2007 compared to its five year average of 26.4. This is likely due to the improvements recently made to the intersection by the Indiana Department of Transportation. National Road and Beam Road improved by 10.4 accidents less than its five year average and 9 less than last year. A spike of 29 accidents in 2004 seems to even out this one good year. In 2003, 2005, and 2006 this intersection produced 15, 17, and 15 accidents respectively.



### **You might be an engineer if...**

You spent more on your calculator than on your wedding ring.

You use a CAD package to design your son's Pine Wood Derby car.

Everyone on the Alaskan cruise is on deck peering at the scenery, and you are still on a personal tour of the engine room.

You know the glass is neither half full nor half empty; it's simply twice as big as it needs to be.

The salespeople at Circuit City can't answer any of your questions.

You are at an air show and know how fast the skydivers are falling.

You are convinced you can build a phazer from your garage door opener and your camera's flash attachment.

You can quote scenes from any Monty Python movie.

You can't write unless the paper has both horizontal and vertical lines.

You go on the rides at Disneyland and sit backwards in the chairs to see how they do the special effects.

You have ever owned a calculator with no equals key and know what RPN stands for.

You have ever saved the power cord from a broken appliance.

You just don't have the heart to throw away the 100-in-1 electronics kit you got for your ninth birthday.

You know what `http://` stands for.

You order pizza over the Internet and pay for it through your home banking software.

You still own a slide rule and you know how to work it.

You think your computer looks better without the cover.

Whether to buy flowers for your girlfriend or spend the money to upgrade your RAM creates a moral dilemma.

Your laptop computer costs more than your car.