TRIP REPORT
CSO AND STORMWATER CITIES SITE VISITS
MINNEAPOLIS/SAINT PAUL, AUSTIN, NASHVILLE
AUGUST 7 -9, 2002

Metropolitan Council Environmental Services
230 East Fifth Street
Saint Paul, MN 5501-1633
10:00 A.M., August 7, 2002

Mr. William G. Moore, General Manager, Wastewater Services Division
Greg Giornelli, City of Atlanta
Mike Mynhier, PMT

Site Visit

The Metropolitan Council of Environmental Services (MECS) is the regional provider of wastewater conveyance and treatment for the 103 municipalities in the 7 county metropolitan regions. This includes the cities of Minneapolis, St. Paul, and South St. Paul, who along with MECS jointly implemented the 10 year CSO Sewer Separation Program. The MECS owns and operates 8 WWTPs and the interceptor sewers necessary to convey the wastewater to these facilities. The local governments are responsible for the collection systems tributary to these interceptors.

The 10 year program was initiated in 1986 after Minnesota Governor Rudy Perpich and Wisconsin Governor Anthony Earl announced in 1984 plans to accelerate clean-up of the Mississippi River from overflows of remaining combined sewers in parts of the Twin Cities area. Sewer separation projects initiated in the 1970s were already underway and completion of this work would be accelerated.

As a result MECS, Minneapolis, St. Paul, and South St. Paul would work together to fund and implement this program. Ultimately the work was completed in 1995 at a total cost of about $395 million. MECS spent about $102 million separating interceptors serving St. Paul ($38 Million) and Minneapolis $64 million). The remaining $293 million in costs were incurred by St. Paul ($217 million), Minneapolis ($67 million) and South St. Paul ($9 million).

The MECS separated the interceptor sewers by partitioning the interceptors into two compartments (one above the other) with corrugated metal plates to create separate conduits (pipe within a pipe) to separately convey stormwater and sanitary sewage. While reducing cost, this has created a problem with performing maintenance and determining ownership – MECS or the municipalities. This will eventually require construction of a separate sanitary sewage pipe.

Mr. Moore provided us a copy of the May 1996 Annual Progress Report for the Separating Combined Sewers to Improve and Protect Mississippi River Water Quality: A 10 Year Commitment. The additional discussion with Mr. Moore is summarized in the following summary notes:

- There was 4 billion gallons annually of CSO before the program, now about 15-25 mgd remains each year.
- Now about 98-99% of the area is separated – Minneapolis has still not separated its downtown urban core.
- Probably about 75% of remaining overflows result from the 1 downtown Minneapolis regulator.
- St. Paul had a very aggressive and effective program for disconnecting roof leaders that included a one year period when financial assistance was offered to homeowner to accomplish the work, after which, the requirement to disconnect was mandatory, without any financial assistance.
- Minneapolis had a voluntary program that has not been effective.
- Mr. Moore believes it would take about $200 million for Minneapolis to separate its downtown urban core, whereas storage and treatment may cost about $40 million.
- He believes it would be extremely disruptive to businesses to do separate the downtown urban core.
- Of the $293 million spent by Minneapolis, St. Paul and South St. Paul about $158 million was from City funds (54%), $31 million from Federal funds (11%) and $105 million from State funds (36%).
- Mr. Moore speculated it would take Atlanta at least 10 years to separate its combined sewers.

City of Saint Paul
Department of Public works
700 City Hall Annex
25 West Fourth Street
Saint Paul, MN 55102
1:00 P.M., August 7, 2002

Bruce Elder, Civil Engineer, Manager, Right of Way
Michael G. Kassan, Civil Engineer
Larry H. Lueth, Assistant City Engineer
Roger Puchreiter, Separation Project Manager (Retired)
Greg Giornelli, City of Atlanta
Mike Mynhier, PMT
Andrew Harris, Georgia Tech.

Site Visit

Mr. Kassan made a presentation describing the 10 year sewer separation program implemented by St. Paul. During the presentation much discussion ensued which is summarized below:

- In the 1970s a CSO facility plan was prepared recommending a storage and treatment system be implemented to reduce combined sewer overflows. St. Paul objected to the plan because overflows would still remain, concerns about health impacts, and questions about the cost estimates. Eventually a State CSO Task Force was formed with representatives from the State of Minnesota, the State of Wisconsin, St. Paul, Minneapolis, MWCC, and environmental groups. After study, the plan was revised to recommend sewer separation. The benefits of sewer separation were expected to include: elimination of overflows, elimination of sanitary sewer backups, improved stormwater drainage, increased sanitary sewer and treatment plant capacity, extension of life of aging sewer system, eliminate operating problems for combined sewer system, and reduced sewer service charges by MWCC.

- The City initially began to separate sewers in 1960. The estimated cost was about $172 million. At the rate of separation under in 1985 it would take until 2025 to complete the separation projects.

- The criteria that was used to determine the 10 year sewer separation priorities included:

    - Remove the most CSO for the least cost
    - Eliminate local flooding with a system designed for 5 year storm (low areas designed for 100 year storm)
    - Eliminate basement sewer backups
    - Coordinate with MNDOT construction program
    - Coordinate with MWCC's CSO and lake overflow projects
    - Coordinate with other local utility work
    - Minimize traffic and utility disruption
    - Coordinate with neighborhood street paving and sewer installation

- The City's separation plan included strategy to accomplish other infrastructure improvements while tearing up the streets to separate the sewers:

    - Street paving - 168 miles
    - Water main installation - 26.2 miles
    - Lead water service replacement - 3,500
    - Gas main installation - 238 miles
    - Gas services renewed or replaced - 25,078
    - New historic street light installation - 6,806
    - Tree planting - 11,000
    - Handicap ramp installation in sidewalks - 8,200

- The City manages stormwater with education, source controls, street sweeping, and ponds. Different types of ponds are utilized for various purposes - flood control, flow detention and retention and treatment.

- The sewer separation was principally accomplished by converting combined sewers less than 36-in. into sanitary sewers and larger than 36-in. into storm sewers.

- The 10 year separation was accomplished during a period of very favorable cost control; conditions – low inflation and good contractor availability. As a result prices were stable and projects were accomplished within budgets.

- The City Council supported the expedited schedule by permitting some non-traditional project delivery methods – The use of the same core of four local consultants for design and construction phase services, approved the annual project plans without adjustments, and prompt approval of necessary contracts.

- The City staff performed about 40% of the design and construction phase services, while a core team of four local consultants performed the remainder of the work. The City was the overall construction manager.

- The $217 million project was accomplished in 10 years and separated 15,700 acres and about 190 miles of combined sewers. There were about 100 individual design and construction projects (about 10 per year) ranging in size from $0.5 million to $9 million (average size about $2 -3 million). All projects were design-bid.

- The contract documents included very specific criteria for allowable construction period and street closing for each project. This was important in managing community and business disruption. They allocated 5% for change orders and the overall project was completed within this allowance.

- The projects were dispersed throughout the combined sewer area to minimize local disruptions to neighborhoods, businesses, and traffic). Nonetheless, there was considerable impact on traffic and businesses. Some businesses failed (not always clear if result of project or other normal conditions).

- The sewer work was generally 5 ft. to 15 ft. deep and rock was common (near surface limestone layer and sand rock deep. Most work was open cut with some blasting. However, there was some tunneling in the sand rock layer using water jets.

- The sewer separation projects were designed to eliminate flooding, eliminate basement backups, coordinate utility work, minimize traffic disruption,

coordinate paving and improve neighborhoods. In retrospect, more emphasis could have bee placed on flood control.

- Flood control now accomplished by inventorying all low-lying areas and wetlands and disapproving fill permits in these areas. Where possible the City is acquiring these low habitually flooding areas and improving them for stormwater storage, The City now owns about one-half of these low areas and wetlands in the City.

- They have experienced significant transformation to neighborhoods as a result of the paving, street light installation and sidewalk improvements.

- They have seen signs of water quality improvements with the separation projects – mayflies have returned, fecal coliform reduction, marina expansion, bald eagle increases, diversity in fish population (pollution tolerant species), and establishment of walleyes.

- The separation project was funded about one-third by the City, one-third by the State (grants and 0 interest loans) and one-third by the Federal government (grants). When the Federal grants were discontinued in 1991, the City and the State made up the shortfall equally.

- A storm water utility was implemented in 1988 to fund the stormwater improvements. Current annual budget is $8.6 million for stormwater improvements. Funds:

    - $4.45 million – property tax
    - $2.0 million – sewer service (rate) charges
    - 2.15 million – direct special assessment (per front foot)

- The St. Paul staff speculates that based upon their experience, it would take the City of Atlanta 7 plus years to separate 12,000 acres, even with a 12 month construction season. The staff recommended conventional design-bid implementation, rather than design-build, in order to maintain needed control of contractor work important in managing disruptions.

- The City conducted the Atlanta team on a tour of the separation areas and some of the stormwater management projects (wet ponds, dry ponds, flood storage areas). See photographs in Appendix.

- The City will provide copies of the presentation, bid unit price data, and breakdown of construction and non-construction costs of the separation program.

<u>Supplemental Information</u>

The City of St. Paul submitted the following additional information after the site visit:

- Project Termination Summary (presenting cost analysis of recently completed projects)
- Presentation Notes from August 7, 2002 Meeting
- Comprehensive Sewer Plan, March 1984
- Summary of Sewer Bids, 1990 & 1994

A subsequent phone conversation on August 19, 2002 with Mike Kassan is summarized below:

- There were about 250,000 residents in the entire City of St. Paul. About 50% is estimated to reside in the area of the City separated
- Roof leaders were disconnected in about 50% of the homes
- Rock was encountered in about only 5% of the total lineal feet of piping added during separation
- The new storm sewers and sanitary sewers were RCP
- The vast majority of the work was in public ROW, requiring very minimal easement and land acquisition
- No directional drilling or micro-tunneling was necessary
- Many of the areas separated already had separated sewers that connected into combined interceptors and required only connection into new sanitary interceptors by MCES to accomplish
- The expenditures by MCES to separate combined interceptors was necessary to accomplish the separation in St. Paul and these costs should be considered in the cost analysis

City of Austin
Water Protection Department
Environmental Resource Division
206 E. 9th St., Suite 16.100
Austin, TX 78701
9:00 A.M., August 8, 2002

Leslie G. Tull, Supervising Engineer, Water Quality Management Section
John Gleason, Landscape Architect
Greg Giornelli, City of Atlanta
Andrew Harris, Georgia Tech.
Mike Mynhier, PMT
Ken Hall, CH2M HILL
Robert Adams, CH2M HILL

Site Visit

The Water Protection Department is responsible for Austin's stormwater management program. A drainage (stormwater) utility was established in 1993 to fund stormwater and drainage improvements. The utility has generated about $12 million ($1-$1.5 million per year) of which $7-$8 million has been encumbered for specific projects. No ponds were developed prior to establishment of the utility. The City also has an ordinance requiring developers (the downtown area is excluded) to provide onsite water quality and flood control facilities - detention and sand filters, or as an alternative, pay fees to the Urban Watershed Structural Control Fund. The fund is used by the City to build retrofit water quality improvements in the Austin urban drainage area. Currently most developers pay the fee, since the current fees are so low and since they can also avoid maintaining the facilities. The fees are being increased. Discussions with the City staff are summarized below:

- There are 14 stormwater management ponds and lakes within the urban drainage area (only one of these is in the downtown urban core – a one acre filtration bed at the convention center) that have been developed in the last 10 years. These facilities are estimated be about 20-30 acres total, comprise about 2-3 % of the urban area, and treat 4,560 acres. Thus, they have developed about 2–3 acres of projects per year on the average.

- The Urban Watershed Structural Control Fund has generated more funds than they have been able to expend. The biggest limitation is availability of land in the urban land that can be acquired for amounts to make the projects cost effective. The City uses a benchmark of $.50-1.00 lb. of TSS removes per year (annualized over 25 years) as a measure of cost effectiveness. Major costs include land and the cost of constructing the system.

- No overall monitoring available for the urban area to assess water quality improvements. They can estimate the performance of individual projects.

- They recently completed a long-term master plan including, stream bank erosion, flood control, water quality and ordinances. However, since the urban area is so developed they have to be very opportunistic to acquire land suitable for stormwater management projects. Most projects are part of redevelopment projects. They expect this will be the case in Atlanta as well.

- Austin does not believe it is practical to treat all stormwater in an urban watershed. But, cost-effective projects can be developed in an opportunistic manner as part of re-development projects.

- They modeled their program after some of the areas leading stormwater management – Montgomery County and Prince George counties, MD; Seattle, WA; and Portland. OR.

- The Central Park pond is a 20 or so acre site that has been developed and includes a 4-5 acre treatment pond. The development includes open greenspace, recreation, shopping, apartments and a hospital.

- The project was a partnership between the City, the State and the Developer (Barshov and Oles). The State owned the site on which a mental health facility was located. Most of the land was undeveloped open greenspace.

- The State wanted to develop the land to get tax revenue and development plan began. The City came in when it saw this rare opportunity to retrofit stormwater management in the re-development project. The State could have simply constructed a dry detention pond, and was not required to develop the treatment pond as ultimately constructed.

- Since the State owned the land no land acquisition costs were necessary and the resources from the urban fund could be used entirely for project construction costs. The Central Park pond treats about a 176 acre tributary area at about $.76 per lb. of TSS removal per year.

- We toured the Central Park development as well as several other stormwater management projects. See photographs in Appendix:

    - Convention Center wet pond – This is the only pond in the downtown urban core, it is a 1 acre pond that treats about 17 acres and cost $300,000.
    - Austin America sand filter – This filter treats about 17-20 acres and provides about 85% TSS removal for captured runoff.
    - Whole Foods sand filter – This sand filter treats runoff from the parking lot.

- The City of Austin will provide the City of Atlanta with the following:
    - Legislation for the drainage utility
    - Regulatory plan for stormwater quality
    - Description of stormwater projects
    - Urban Water Quality Structural Fund description
    - Budgets
    - TSS removal estimates

Metro Government of Nashville/ Davidson County
Department of Water & Sewerage Services
1600 2nd Avenue North
Nashville, TN 37208-2206
8:00 a.m., August 9, 2002

Greg Ballard, Director
Vernon Thompson, CTE Engineers

John Evans, W.L Hailey
David Waller, W.L. Hailey
Dale Mosley, Gresham Smith and Partners
Joe Whitson, Gresham Smith and Partners
Buddy Williams, CTE Engineers
Cooper Chilton, Metro Water Services
Scott Potter, Metro Water Services
Paul Stonecipher, CTE Engineers
Greg Giornelli, City of Atlanta
Andrew Harris, Georgia Tech.
Mike Mynhier, PMT

Site Visit

In 1990 the Nashville Metropolitan Department of Water Services began work on its $843 million Overflow Abatement Program (OAP) to eliminate overflows from its combined and separated sewers. As part of this program a 700 acre portion of the combined sewer service area adjacent to the downtown central business district was separated, the Demonbreun Combined Sewer Separation Project. This work was implemented in a fast track design and construction mode in order to complete construction in about 20-months in time for initiating construction on the City's new arena and new stadium. To date, about $700 million of the planned $843 million for the OAP has been spent. Below is a summary of the discussions during the tour of the Demonbreun project and office meeting:

Demonbreun Combined Sewer Separation Project Tour

- This project separated about 700 acres adjacent to the central business district. The area is a mainly small to medium commercial businesses with some institutional, single and multi-family residential properties and open tracks throughout.

- The sewers in this area are quite old the majority of which were constructed in the late 1800s and early 1900s, many trunk sewers are brick sewers constructed in streambeds or natural drains which were filled over as the city expanded.

- The project was constructed in two phases between 1996 and 1998:

    - Phase I – 11 months: Separated 175 acres by constructing 16,100 LF of 8-in. through 36-in. sanitary sewers and 10,100 LF of 8, 10, and 12-in. storm sewers. Also, 10,500 LF of 6-in. through 16-in. water lines were constructed. The construction cost of sanitary and storm sewers was $6,634,372 and of water lines was $1,417,801. Planning and design costs for all work was $1,237,535.

- Phase II – 20 months: Separated 525 acres by constructing 34,000 LF of 8, 10 and 12-in. sanitary sewers and 28,300 LF of 18-in. through 60-in. storm sewers. Also, 14,000 LF of 8-in. through 18-in. water lines were constructed. The construction cost of sanitary and storm sewers was $10,395,613 and of water lines was $6,313,094. Planning and design costs for all work was $2,156,664.

- To meet the City's stormwater management policy the new storm sewers were designed to have sufficient capacity to carry runoff from a 10-year, 24-hour storm, based upon hydraulic modeling using XP-SWMM.

- In order to meet the tight time schedule of for initiating construction of the City's new arena and new stadium the project was implemented in a fast track design and construction mode. In this mode, once the engineer completed the design of a segment (biddable documents), and walked it through the State approval process, the construction would begin on that segment, while the design consultant started to design the next segment. The delivery team included:

  - Metro Water Services (Nashville) – Owner
  - Metropolitan Department of Public Works - Owner
  - CTE Engineers – OAP Program Manager
  - Gresham Smith and Partners – Design Engineer
  - W.L. Hailey – CM/Contractor

- The form of the construction contract was based upon a construction manager (CM) that is also the contractor. The time and materials with cost-not-too-exceed contract included lump sum prices for CM fee and profit, negotiated labor and materials unit costs, engineer's cost estimate and contractor's not-to-exceed costs prepared at completion of design, and contractor incentives: $75,000 if under engineer's estimate and $50,000 if within 10% of engineer's estimate. No liquidated damages for late completion.

- It is reported that construction went well with minimum of disruption to the area with only 2-3 complaints received by the City over the life of the project. These were related to access to property.

- Rock was prevalent in the area – about 40% of the work in phase I encountered rock, while 90% of the work in Phase II encountered rock. Rock was either blasted or removed with rock-hoe.

- The contractor generally had 10 pipe crews, 1 paving crew, 2 concrete crews, and 1 traffic control crew working simultaneously. Some projects were limited to 9:00 a.m. to 4:00 p.m. to facilitate rush hour traffic. They generally worked 6:30 a.m. to 5:00 p.m. No weekend work.

- The contractor representative, with experience in the City of Atlanta, speculated that it would take the City of Atlanta 10-12 years to separate 12,000 acres. Likely, 4 sub-basins could be worked on concurrently, accomplishing about 200 – 250 acres each per year, or 800 – 1,000 acres per year total.

Meeting at CTE Engineers Office

- Metro Water Services provides water, wastewater and stormwater (beginning three months ago – previously with DPW) to the metropolitan Nashville and Davidson County service area. The Nashville Department of Public Works provides more traditional streets and refuses services.

- There is not a stormwater utility in place despite previous efforts by DPW to establish one. Stormwater improvements are to be funded from stormwater bonds, revenue bonds, and general fund ($2.8 million/year). Expect initial year to be at about $13.7 million, and $21 million after that.

- Up this time most stormwater management activities have been to enforce erosion and sedimentation control regulations. Metro Water Services is planning to develop a team of experts for water quality plans, build relationships with TDEC, work with developers, and developing relationships with other watershed management agencies. They plan on taking a watershed management approach to overall water, wastewater and stormwater management.

- The OAP has no federal or state grants. It is being funded by revenue bonds, State revolving loan funds, and 10% surcharge on sewer bill. Nashville has rates about in the middle range of comparable Cities, about $20 per month per person.

- Nashville's OAP has benefited from cooperative effort with Vanderbilt University. Vanderbilt conducts some sampling, other sciences related projects, and some oversight activities. They are regarded by the agencies as "third party" and their opinions supporting the program are highly regarded and lend credibility to the program activities.

- One of the approached that helped tremendously in getting the OAP moving initially was managing the procurement process for professional services. The City procurement department was not able to respond to the program needs for rapid selection and contracting so the Program Manager managed procurement utilizing the Metro Development and Housing Authority procurement department for the first three years. After that time the process was returned to the City.

- Metro Water Services has about 156,000 accounts, operates three WWTPs providing about 122 mgd of average daily treatment capacity, operates 96 pump stations, has 330 square miles of service area, and has 2,200 miles of sewers. Nashville is in a valley ringed with hills, unlike Atlanta which is at the top of the ridge. There are 11 tributary streams to the Columbia River.

- Gresham Smith and Partners will send additional information on the details of the separation project to the City through the PMT. Mr. Lowell Chambers/COA has a copy of the project definition report for the OAP that provides details on each project.

- More details of the OAP can be obtained from the project Web site: nashvilleoap.com. This site is linked to Metro Water Services.

- The following documents were provided by the Nashville team:

    - Demonbreun CSO Basin Phase I and II project summary report
    - Reprint, The Road to Efficient Sewer Separation, Water Environment & Technology, June 1999
    - Alternative Project Delivery for Combined Sewer Separation in Downtown Nashville, Mike Burgett, P.E. and Joe Whitson, P.E.
    - Request for Proposal, Construction Management Services for Demonbeun Basin Combined Sewer Separation and Water Line Replacement Project, Metropolitan Development and Housing Agency, Nashville, TN, November 29, 1995

Supplemental Information

The Program Manager, CTE Engineers and the design Engineer, Gresham Smith and Partners submitted the following additional information after the site visit:

- Schrader Lane Separation Design Report, July 2002
- Schrader Lane Schematic Design – Per acre cost comparisons
- W.L. Hailey Proposal Form – Phase II, Demonbreun Combined Sewer Separation
- Nashville Overflow Abatement Program, Monthly Report 147, June 2002

Subsequent phone conversations and e-mail correspondence with Mr. Vern Thompson, CTE Engineers, and Joe Whitson, Gresham Smith and Partners are summarized below:

- The OAP is about $850 million (design and construction only – 1.3 billion when add in debt service costs). Of this total cost, $459 million (54%) is for SSO projects and $384 million (45%) is for CSO projects.

- The combined sewer area is about 5,000 to 6,000 acres with 400 miles or so of combined sewers, while the separated area is about 520 square miles with 2,100 miles of separate sanitary sewers.

- The OAP will separate about 40% of the combined sewer system and store and treat the remaining 60%.

- Nashville is permitted for 8 overflows per year, twice the national CSO policy, because of the water quality modeling demonstrating CSOs are not the major WQ problem.

- Storage is provided in the Driftwood 1-mg equalization basin, Browncreek Tunnel (1-mg), Kerrigan Tunnel system (6 to 7 miles, 16-ft. diameter), 1st Avenue and 2nd Avenue (108-in., 1-mg) tunnels. The entire storage in this system is less than 8 mg. The system will sore the runoff from a 4-in. rain (5-year storm).

- A new 160-mgd pump station will convey wet weather flows from the 1st and 2nd Avenue tunnels to the Central WWTP which has been expanded by 130-mgd (200 – 330 mgd) to treat wet weather flows. CSO will be treated through primary and disinfected.

- Initially construction costs were about the level expected, then the program became resource limited (design and construction) and costs increased. They then rescheduled work to even cash flow and reduce resource requirements and the costs decreased.

- Last night Vern sent Greg Giornelli a hard copy of the most recent monthly report presenting baseline and actual costs for all elements of the program. He will send me another copy if I cannot retrieve Greg's copy while he is on vacation this week.

- The breakdown of sanitary sewer and storm sewer length and sizes for Demonbreun Separation Project, Phases I and II, were provided.

- The normal depth of construction in the Demonbreun project was 16 feet in Phase I and about 12 feet in Phase II.

- The amount of rock encountered was about 30% in Phase I and about 30-80% in Phase II, and about 50% overall.

- The % imperviousness for the Demonbreun project was about 90%.

- The Demonbreun project did not include any sewer rehabilitation.

- The piping materials in the Demonbreun project were: sanitary sewers less than 18-in. were PVC pipe, 18-in. and larger were concrete, and all storm sewers were concrete pipe.

- All work was done in existing easements and no easement or land acquisitions were necessary.

- No directional drilling or micro-tunneling was necessary.

APPENDIX

PHOTOGRAPHS OF STORMWATER MANAGEMENT FEATURES

SAINT PAUL, MN
AUSTIN, TX

Saint Paul, MN August 7, 2002

Wet Pond @ Razed Strip Shopping Mall - View 1

Wet Pond @ Razed Strip Shopping Mall - View 2

Saint Paul, MN August 7, 2002

Roger Puchreiter Storm Water Treatment Pond - View 1 **(front of gate)**

Roger Puchreiter Storm Water Treatment Pond - View 2 **(Behind Gate)**

Saint Paul, MN August 7, 2002

Dry Retention Pond - View 1

Dry Retention Pond - View 2

Austin, TX August 8, 2002

Convention Center-Wet Pond – View 1 (signage)

Convention Center-Wet Pond – View 2 (center)

Austin, TX August 8, 2002

Convention Center-Wet Pond – View 3 (left)

Whole Foods Market - Sand Filler

Austin, TX August 8, 2002

Austin American Statesman – Sand Filter

Austin, TX August 8, 2002

Central Park - Wet Pond –View 1 (signage)

Central Park - Wet Pond –View 2

Austin, TX August 8, 2002

Central Park - Wet Pond –View 3

Central Park - Wet Pond –View 4