

RIVERBEND LAKEFRONT HOMEOWNERS ASSOCIATION

PLANO, TEXAS

MAY, 1997

REQUEST to CITY OF PLANO

Watershed for Riverbend Lakes



Prairie Creek and Riverbend Lakes



Problems

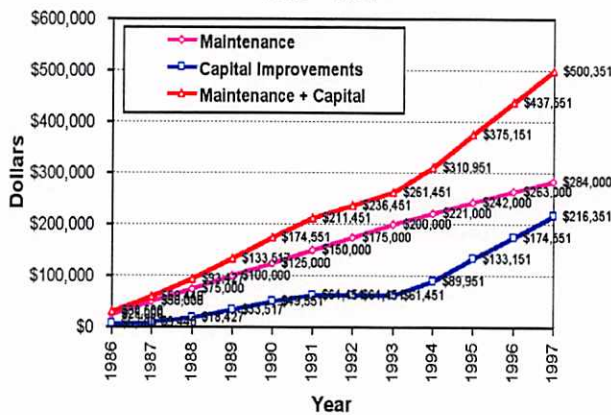


Solutions



Results

Cumulative Expenditures
1986 - 1997



Summary

The Riverbend Lakefront Homeowners Association is facing a crisis in trying to maintain the lakes along Prairie Creek. Over the past 17 years the lakes have experienced a series of significant problems. The first is that the gabion walls lining the lakes have sunk into the creek bottom. This was initially addressed by the homeowners by placing additional gabion "caps" on the existing walls. The solution to the current problems are beyond this type of cosmetic improvement. The second problem is that large volumes of sediment have been carried into the lakes by runoff water from upstream undeveloped Plano land. The city has dredged two of the lakes for the homeowners. The latest and most profound problem is that the wire baskets of the gabions lining the lakes have been corroded away by chemicals in the water carried into the lakes from the lawns and streets over the entire drainage area. The result of this is that the rock contents of the gabions have fallen into the bottoms of the lakes. This has exposed the bare lake walls to the ever increasing volume and velocity of water flowing down the creek during thunderstorms. Substantial erosion is now taking place. This erosion is threatening the integrity of the lakes and requires immediate remediation. The magnitude of the problems are such that the homeowners are no longer in a position to deal with them alone. If help in overcoming these problems is not received, there is a great probability that the lakes will deteriorate to the point they cannot be maintained by the homeowners. In this event, the maintenance of the lakes may be abandoned. It is estimated that over \$800,000 will be required to restore Riverbend Lakes to their original condition. The homeowners are requesting immediate assistance from the City of Plano to help with these problems.

This document reviews the history of the problems encountered with the lakes from the time that they were built to the present. The important points in this review include: the close vote (4-3) by the City Planning Commission in which the developer received approval to build the lakes; the sediment and trash problems experienced due to the large undeveloped tracts of land upstream; the sedimentation problems which resulted because the developers upstream did not

required erosion control; the deterioration of the lake walls; the erosion which has resulted from the high rates of water flow; and the efforts made by the homeowners to maintain the lakes.

There are only 52 homeowners in the Riverbend Lakefront Homeowners Association. Most of the homeowners were “blind-sided” by the problems which now face us. It is impossible for this small number of households to provide the resources necessary to rebuild the lakes. Because the City approved the construction of the lakes, the City must bear some significant responsibility for helping to rebuild them. The City has already recognized this responsibility by dredging some of the lakes and rebuilding lake #1.

The homeowners are requesting that the City of Plano:

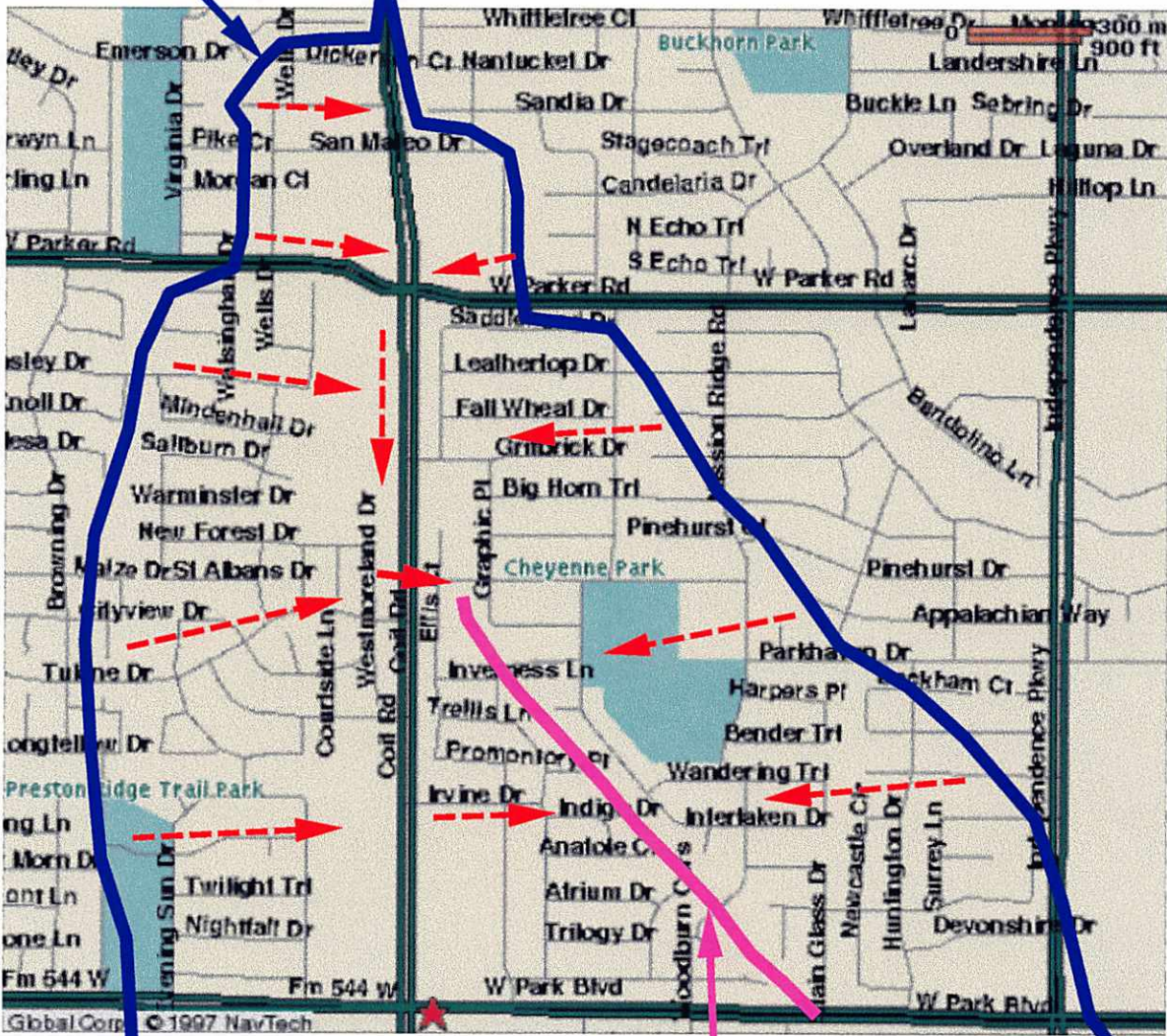
1. Recognize the City of Plano’s role in creating the problems facing the Riverbend neighborhood and participate in the solution.
2. Include Prairie Creek in the Albert Half flood plain survey.
3. Remove the Sediment from Riverbend Lakes.
4. Rebuild the walls lining Riverbend Lakes.

Background

The developers of the Riverbend subdivision first proposed converting Prairie Creek which runs through our properties into a series of small lakes in 1975. The Plano Planning Commission approved both the plat and the construction plans in 1977 by a vote of 4 to 3. The lakes were engineered so as to not impede the water flow but still enhance the beauty and value of the area. At the time of completion around 1980, the lakes were considered to be a showcase for the City and added value to the tax base. The portion of Prairie Creek through the Riverbend development is the storm drain for over 500 acres and carries a hugh volume of water during storms. The watershed area is shown on the map. A large portion of the drainage area remained as undeveloped farm land for over 15 years after the lakes were built.

Location and Watershed

Watershed for Riverbend Lakes



Prairie Creek and Riverbend Lakes

Drainage from Upstream

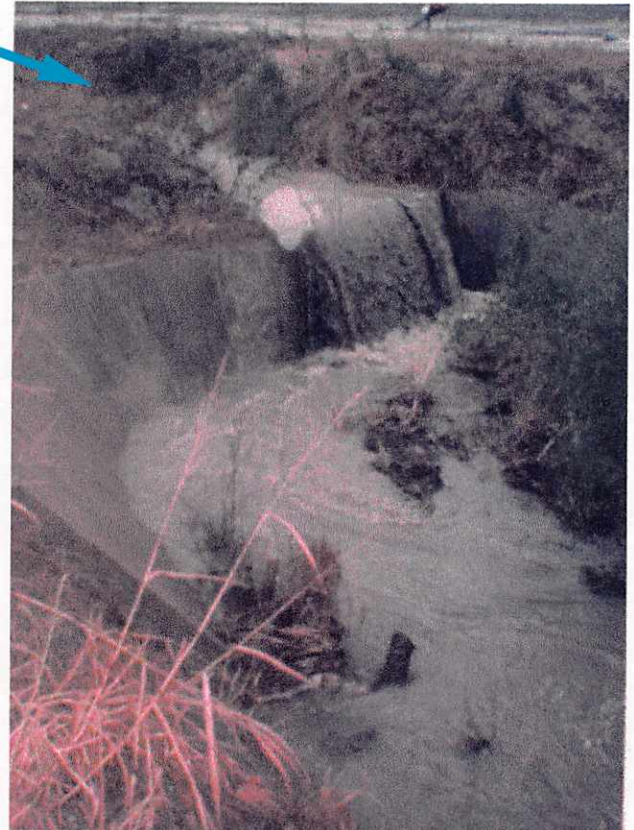
Soon after the lakes were completed, significant problems developed. During the 15 years following the completion of Riverbend Lakes, drainage from areas upstream carried many thousands of cubic yards of sediment into the lakes and large volumes of trash. The photos show some of the drainage ditches along and to the West of Coit Rd. which carried the debris-laden runoff into Riverbend Lakes. Large volumes of sediment were contributed to the lakes because of bank sloughing along these ditches. In addition, the City of Plano had a dirt storage area next to the Coit Rd. ditch where loose dirt was stored and removed over a number of years throughout the 1980's. Significant volumes of this loose dirt washed into the Coit Rd. ditch and from there into the Riverbend lakes during storms and were deposited in our lakes.

Drainage ditches along and to the West of Coit Rd. which carried the debris-laden runoff into the lakes.

Ditch to the West of Coit Rd. with bank sloughing.



Ditch along Coit Road carrying silt-laden water into the lakes.



Trash

After every rain, the Riverbend Lakefront Homeowners must clean up substantial volumes of trash which enters the lakes from upstream areas. Many times this has been as much as 120 large garbage bags for a single clean-up effort.

Trash



Large volumes of trash are carried into the lakes with each rain.

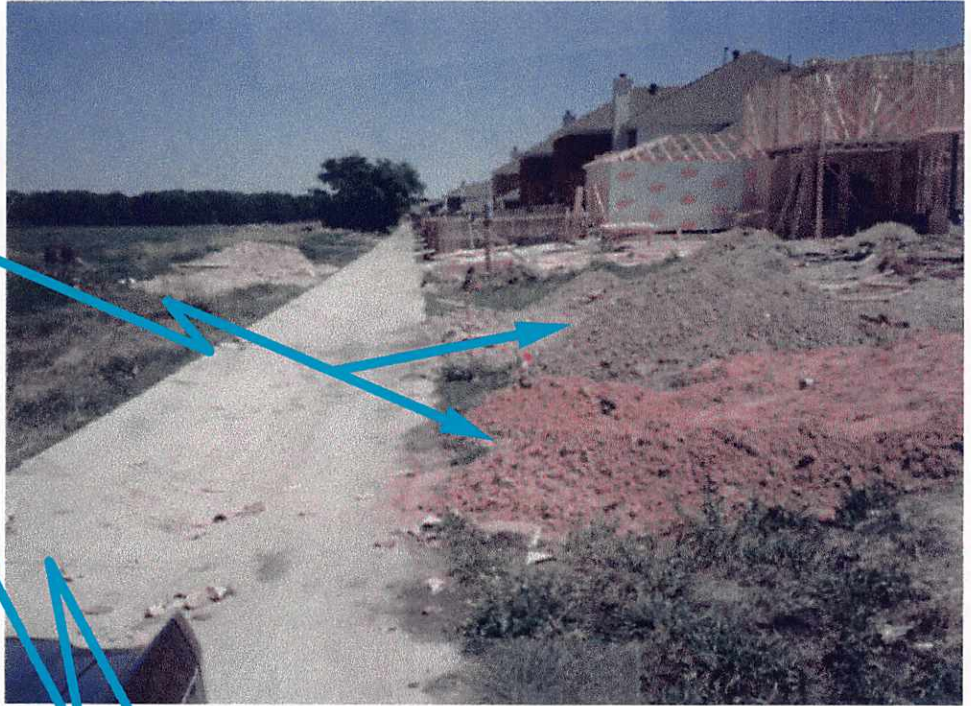


Sediment

When the undeveloped land upstream was finally developed during the economic recovery in the 1990's, the developers did not use legally required erosion control methods and more dirt and debris were washed into the lakes. These photos show that the upstream developers did not control erosion as required by law. The City of Plano is supposed to enforce these laws.

Lack of Erosion Control Measures by Developers

Piles of uncontained dirt during construction allow large volumes of dirt to wash into the Riverbend Lakes.

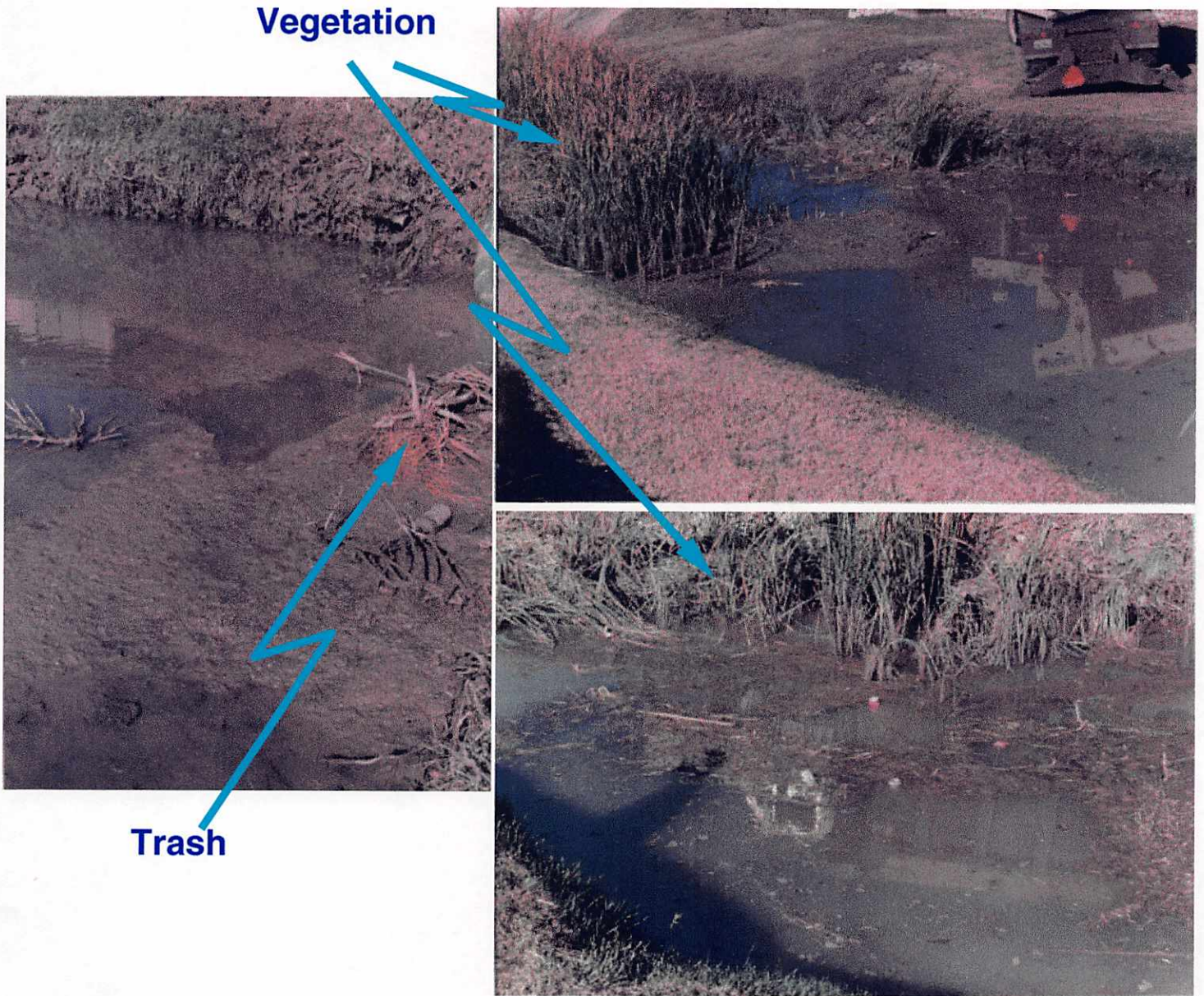


Sediment (continued)

These photos show lake #1 during the 1980's when it was filled with sediment and even occluded by silt and dense vegetation. Lake #1 was rebuilt as a catch basin by the City of Plano in 1989 so that it could be easily dredged as needed.

Sediment Filling the Lakes

Lake #1 filled with sediment and trash and clogged with dense vegetation.



Sediment (continued)

These photos show lake #3 filled with sediment and a dog trapped in the silt. This could easily happen to a child. This lake was dredged by the City of Plano in 1989. All of the lakes are very shallow today and, after almost 20 years, only two of the sixteen lakes have ever been dredged.

Sediment Problems

Dog trapped in lake #3 before dredging



Lake 3 after one day of dredging



Water Volume

The volume and velocity of water which moves through Riverbend Lakes during thunderstorms has significantly increased as the areas upstream have been built out. The ever increasing velocity of water has contributed to the deterioration of the lakes. Since the wire baskets corroded away and the rocks which they were holding fell into the creek bottom, the rate of bank erosion along the lakes has become severe. These photos show Prairie Creek after an average thunderstorm. The Woodburn Corners bridge shown here will soon be rebuilt in order to increase the rate of water flow through the bridge. At times, we experience storms in which the rate of flow of water is larger than the capacity of the bridge. The water then goes over the bridge.

Water Volume

High water along upstream lakes



High water at the Woodburn Corners Bridge



Wall Collapse

The gabion materials used by the developer for the walls which circumscribe each of the 16 lakes were of low cost and low quality. The first problem which faced the Riverbend Homeowners was that the lake walls sank into the creek bottom because no foundation was provided during the initial installation. The gabions were placed on the bare creek bottom with no foundation and no fabric beneath them. This substandard construction technique was approved by the City of Plano. The problem which has led to a severe crisis for the Riverbend Homeowners is that the wires forming the gabion baskets have been corroded away and they are now completely gone. The wires used for the gabion baskets were critically flawed. This wire was a thin galvanized wire and chemicals which are carried into the lakes in the runoff water have completely corroded the wire and the rocks have fallen into the lake bottoms. With no rocks to hold back erosion, the increased high water flow has caused extensive and widespread damage to the lakes. These photos show how one crossover (between lakes 14 and 15) washed out after the gabion basket (which formed the stream bed between them) corroded away. Several of the 15 crossovers have been rebuilt by the Riverbend Homeowners and many of the remaining crossovers are in extremely fragile condition at this time.

Wall Collapse

Erosion of walls
after gabion collapse.



The "crossover" between
lakes 14 and 15 developed
a gap 8 feet wide and
5 feet deep.



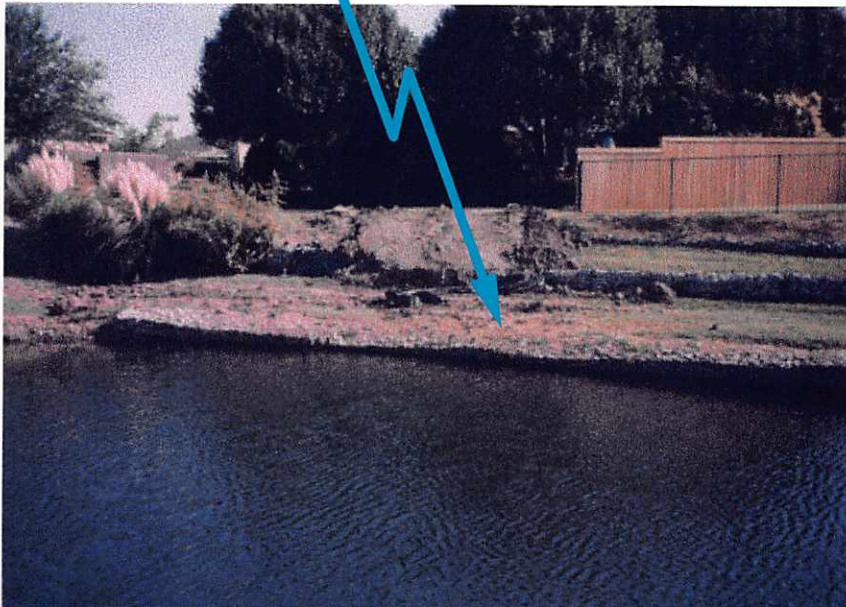
Wall Collapse (continued)

During 1992 and 1993, the City of Plano installed a new sanitary sewer along the entire length of the East side of the creek. This installation caused additional extensive damage to many sections of the gabion walls. All of the lake walls along the East side experienced both lateral and direct pressure from the heavy equipment and trenching. This pressure caused the gabions to give way and collapse (shown in the photo).

Wall Collapse

The already fragile walls experienced lateral pressure from heavy equipment and trenching. This caused the gabions to give way and to collapse.

Wall rolled inward because heavy equipment was allowed to track on the walls.



What the Homeowners have done to Address the Problems

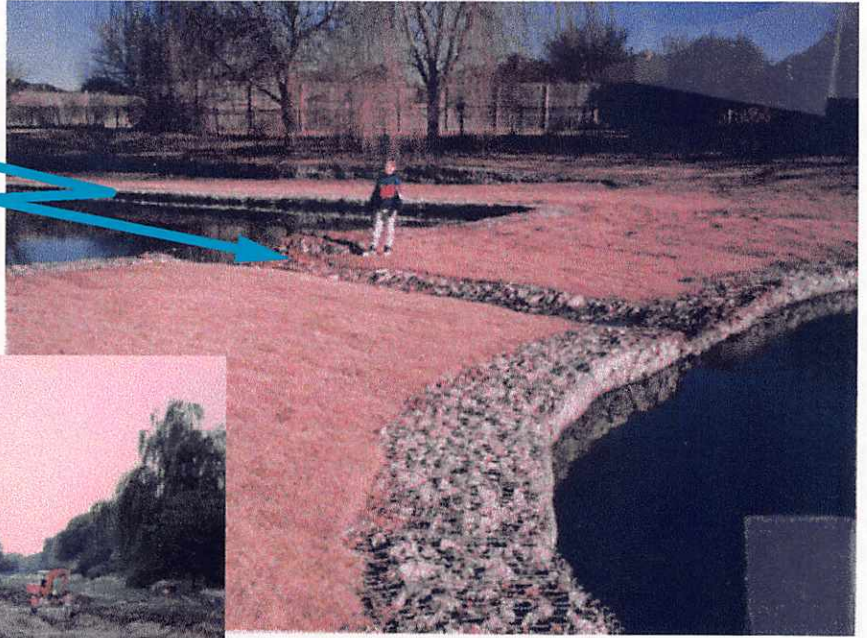
During the period of 1986 through 1997, the 52 homeowners spent in excess of \$500,000 on maintenance and capital improvements. We have spent approximately \$215,000 rebuilding lake walls and \$285,000 on general maintenance. The photos on the facing page show three examples of our intensive efforts to address wall deterioration. All of the new wall construction is now built using concrete walls which are topped by a one foot thick gabion. This new construction technique ensures that the walls will be there for many decades. When the lakes were first built, there were fountains in 8 of the 16 lakes. The operation and maintenance costs for these fountains were on the order of \$5000 to \$7000 per year. In the early 1990's, these fountains were removed in order to re-direct the money for repairs and because the lakes had become too shallow for them to operate without repeated damage.

Fountains were removed to save money for rebuilding the lake walls.



Homeowner's Projects

Lake 14 to 15 "crossover" after reconstruction.



Lake 9 wall under construction.

Lake 12 wall under construction.



Homeowners Past Financial Commitments to Riverbend Lakes

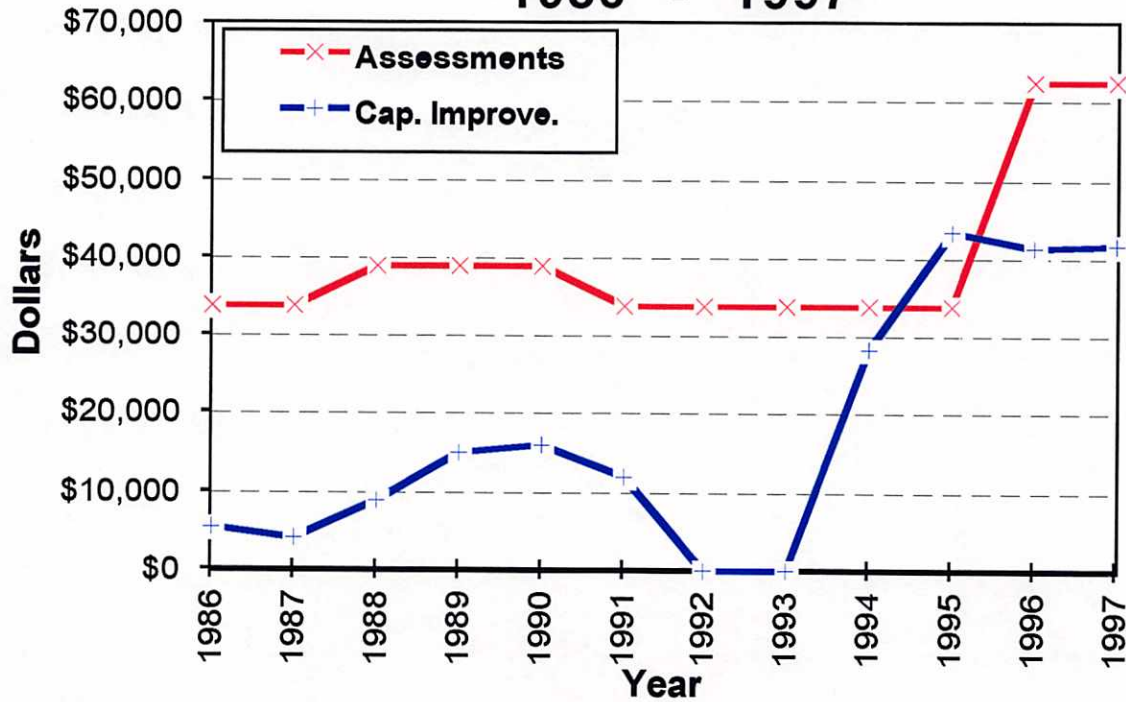
The two graphs show the rates of increased assessments and expenses borne by the Homeowners Association from 1986 through 1997.

The first graph clearly shows the ever increasing expenditures for rebuilding the collapsing walls. A new sanitary sewer was installed along the lakes in 1992 and 1993. This accounts for the lack of expenditures for rebuilding lake walls during this period.

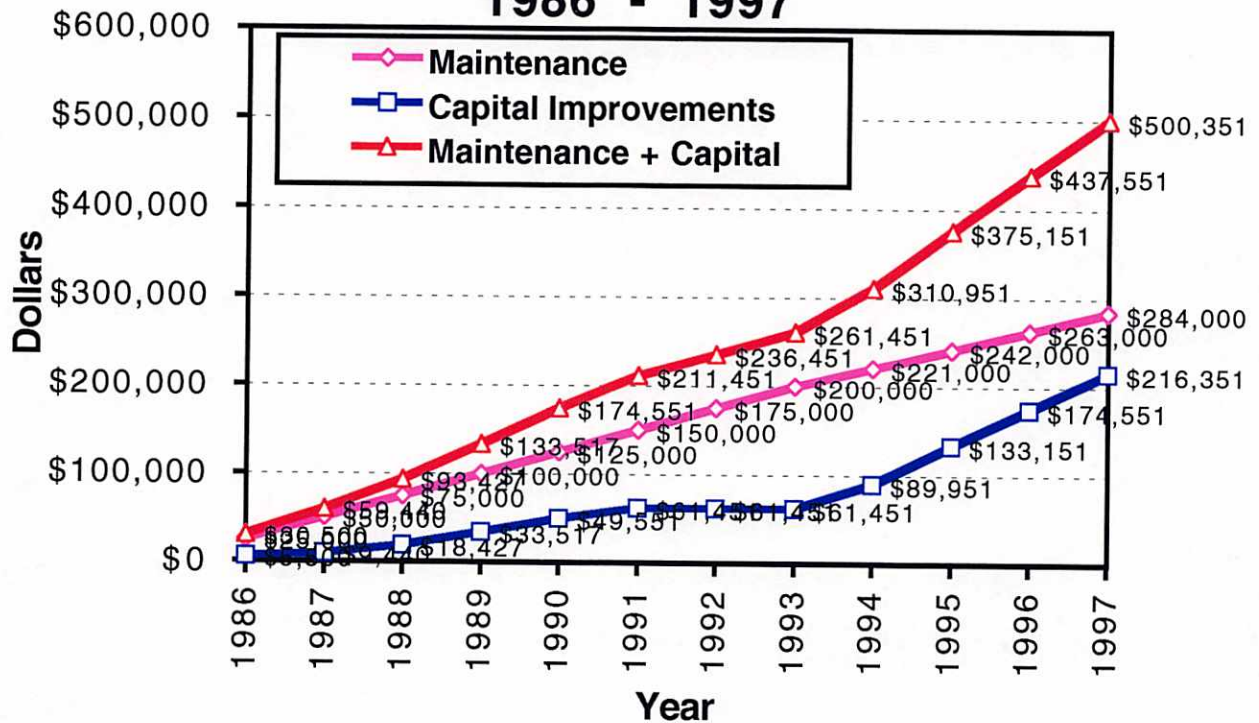
The second graph shows the cumulative expenditures for maintenance and capital improvements. Over the past 12 years, \$500,000 was spent by 52 households. While this is a large amount of money, at the current assessment level of \$1200 per year per household, this number would be \$748,000 over 12 years. By extrapolating the current dues level, the data shows that it would take 15 to 20 years to collect the magnitude of money required to complete the rebuilding and dredging of the lakes.

Riverbend Lakefront homeowners are now paying dues of \$1200 per year. This is one of the highest association dues rates, if not the highest rate, in Plano. The average value of the homes in our Homeowners Association is \$165,000. For the average home, this is a dues rate of \$0.73 per \$100 of value per year. For the homes in the lower price range, the dues rate is \$0.86 per \$100. The City tax rate is \$0.4985 per \$100. The dues rate as a percentage of property value is much greater the City of Plano tax rate and is substantially greater than that paid by any other homeowner's association in Plano!

Assessments and Cap. Improvements 1986 - 1997



Cumulative Expenditures 1986 - 1997



Past City of Plano Assistance in Maintaining Riverbend Lakes

Prior to 1989, the city dredged the first lake in the system more than once. The City dredged lake #3 and rebuilt lake #1 as a catch basin in 1989 so that it can be dredged on a regular basis. Since 1989, the City has dredged lake #1 at least 5 times.

In the first year following the rebuilding lake #1, it filled up with silt twice. In each of the next three years, the City dredged lake #1 only once each year. The last year that this lake was dredged was 1994. Since that time, the lake has not been dredged and it is still not yet filled with sediment. This illustrates that the volume of sediment now coming into the lakes is minimal. The reduction of sediment influx is a result of the recent upstream build-out.

City of Plano Project

**Lake #1 was converted to a catch basin.
It now has a concrete bottom and easy
access for regular dredging.**



The Lakefront Homeowners are requesting that the City of Plano:

Recognize the City of Plano's role in creating the problems facing the Riverbend neighborhood and participate in the solution.

Include Prairie Creek in the Albert Half flood plain survey.

- The portion of Prairie Creek through the Riverbend subdivision was not included in the original Albert Half survey for FEMA. Prairie Creek is a natural watershed and should be included in this survey.
- Millions of dollars of work has been carried out on private property elsewhere in the City as a result of this survey. The photos show just two of many recent gabion projects. One is along Pitman Creek just North of Parker Rd. and the other is along Prairie Creek where it crosses Independence Pkwy. These projects are on private property and were paid for by the City of Plano. The gabion projects completed by the City on private property have, by now, impacted hundreds of homeowners across the City of Plano.
- Prairie Creek through the Riverbend neighborhood is experiencing major erosion and sedimentation problems which will lead to health (stagnant water) and environmental problems. This portion of Prairie Creek should be included in the list of projects which require action by the City.

Remove the sediment from Riverbend Lakes.

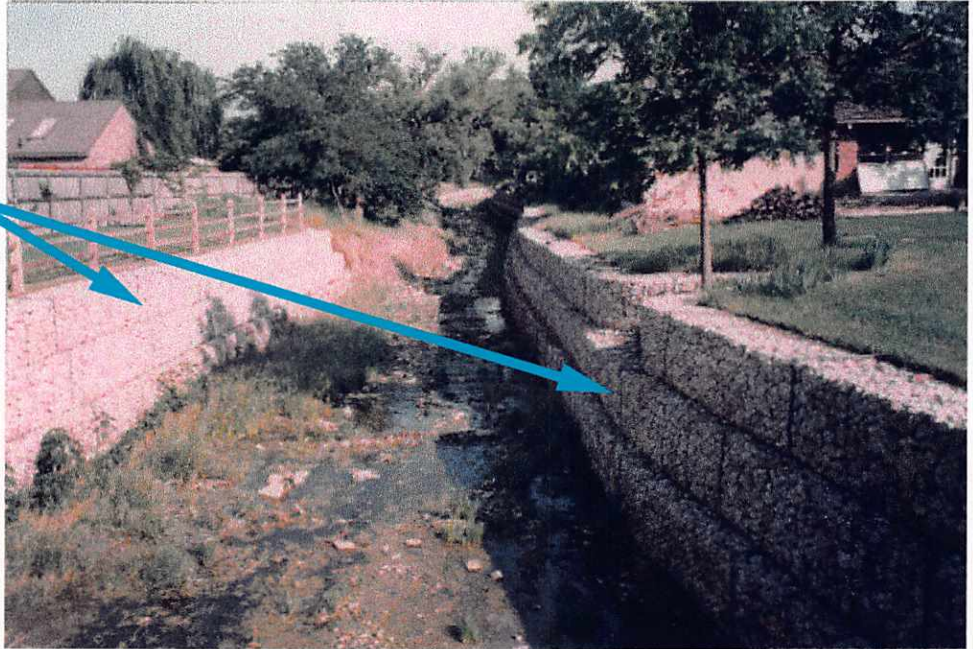
- Dredging costs for the lakes will be on the order of \$400,000. As previously noted, the volume of sediment input from upstream has been reduced to a small fraction because the areas upstream are almost entirely built out. If the lakes are dredged now, it is very likely that dredging will not be required again.

Rebuild the walls lining Riverbend Lakes.

- This effort will be on the order of \$450,000 over the next few years. If the lake walls are not rebuilt soon, major problems will develop which will be prohibitively expensive to repair at a later date. The new construction technology being used ensures that the new walls will last for many decades.

City of Plano Gabion Projects Built on Private Property

Piman creek,
North of Parker Rd.



Prairie creek at
Independence Pkwy.



Benefits to the City of Plano

1. The Riverbend neighborhood will continue to be a desirable place to live and not become a liability to the city.
2. Prairie Creek will not deteriorate and become a health hazard, legal liability, and public eye sore. Property values will be maintained.
3. Children routinely enter the waters of Riverbend Lakes without authorization. This has the potential for serious consequences if injury, infection by neurotropic protozoa (from stagnant water), or death occurs because of silt.

Why the homeowners must have city support now

The problems which are facing the Riverbend Lakefront Homeowners require immediate attention.

- There are only 52 homeowners in the Association.
- The average value of the homes in the Association is \$165,000.
- The current dues level of \$1200 per year is a financial hardship to the homeowners and cannot be increased.
- The current income from dues (\$62,400 per year) is inadequate to support the level of wall rebuilding required to keep up with the ongoing erosion and sedimentation problems.
- If we do not perform necessary improvements at this time, major problems will develop which will be prohibitively expensive to repair in the future.
- If we do not keep the lakes in good repair, the lakes will become a health and safety problem for the neighborhood. There is also significant potential for the breakup of the Homeowners Association and a real possibility that the area will become a major liability to the city.
- If the homeowners association breaks up and the lakes are not fixed, the city will inherit this problem and there will not be a Homeowner's Association to provide the current maintenance funds of about \$60,000 per year.
- Now that the upstream areas are essentially built out, the timing for dredging is logical and appropriate.

What the Homeowners are Requesting **Review**

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- 2. Include Prairie Creek in the Albert Half flood plain survey.**
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