



Date of Council Meeting: April 22, 2013

**TOWN OF LEESBURG
TOWN COUNCIL MEETING**

Subject: Downtown Improvements Project

Staff Contact: Scott E. Parker, AICP. Assistant to the Town Manager

Issue: Should Town Council endorse the modified plan for the King Street portion of the Downtown Improvement Project proposed by *Voices for an Amazing Place*?

Background: At its work session of November 26, 2012, the Town Council was given a demonstration for an alternative design for King Street from Cornwall Street to Loudoun Street by "*Voices for an Amazing Place*" design volunteers. The plan that the group came up with consists of a retractable curb concept that includes a mechanical curb that can be manually raised and lowered into King Street. This curb would be placed within an underground concrete structure on the outside edge of the parking lane of King Street adjacent to the travel lane. The curb could be raised in order to eliminate parking and provide more pedestrian space. When manually lowered to be in a "flush with the street" configuration, parking could be utilized along the street. The concept includes metal fencing adjacent to the curb when in a raised position, and adjacent to the general location of the traditional curb when parking would be utilized.

There is no traditional curb associated with the design, but a gradually sloping sidewalk/parking area that meets flush with the street near the edge of the currently existing parking spaces where they are adjacent to the travel way, rising gradually towards the building faces. When the curb is in the "down" position, the fencing serves as a barrier between the parked cars and the sidewalk.

At the meeting where this concept was presented, Town staff was tasked with analyzing the plan for viability and cost. Town staff has met with representatives of the Voices group on a few occasions to share ideas and to garner information as it relates to the envisioned concept.

Summary conclusions

Since this is a brand new conceptual system, information required for a complete and all-encompassing analysis is difficult to provide. In addition, since this will be the first of its kind system built, there are associated costs that staff just does not know at this stage. Mainly because the mechanical system has not been designed and tested structurally for durability and compatibility with an underground street environment. An additional unknown is that of maintenance, since nothing like this exists. What staff has done, and shared with the Voices group, is to provide an analysis of the things we do know to date would be required to accommodate the underground mechanical structure.

While all the information needed for a full analysis is not available yet, staff has concluded that the system is indeed viable, subject to field testing. However, with the information we do have so far, staff has determined that the retractable curb project very likely will:

- Exceed the existing budget by a range of between \$500,000 and \$1 million.
- Take approximately one to two years longer to get to physical construction because of testing requirements.
- Take longer to physically construct than the allocated length of the construction phase.

Analysis

With respect to the summary conclusions referenced above, the following is how staff arrived at these conclusions.

The project will exceed the existing budget by a range of between \$500,000 and \$1 million.

While we do not know all of the details about how the mechanics of the retractable curb structure itself would be tailored to a long term underground environment in King Street, we do know that it will have to be housed in a concrete structure that will need to be placed underground in the street along the parking lane of King Street. This will require the relocation of a water main and a gas line that was not contemplated or proposed for any other proposal. The water line replacement, which is required by the proximity of underground construction, will also create the need for new service lines to the existing properties along King Street, as the underground trench system will interfere with existing service lines.

In addition, is not certain that the concrete boxes that will accommodate the mechanism can convey storm water under all conditions. Particularly in ice and snow events, where the trench housing the mechanism could be covered and blocked. Therefore, to guarantee adequate drainage, a parallel storm drainage system is recommended to be constructed. This is particularly important since there is no physical curb to convey the water as currently exists. Flooding of businesses is a particular concern for staff if the trench does become blocked and does not properly function.

In addition, the creation of the underground concrete boxes and the moving of various utilities require King Street to be re-built. The original plan only called for a mill and overlay, with no utility relocation, adding to the cost (see attachment 3).

The project will take approximately one to two years longer to get to physical construction because of testing requirements.

This mechanical device has not been tested for durability or maintenance in the field. When contacted, VDOT informed us that their criteria for the introduction of a new device in a right-of-way such as this would mandate a two year field trial. This trial would include the

introduction of the device or traffic control measure into a controlled real world or pilot program environment for testing and analysis.

Staff believes that a similar approach needs to be taken by the Town to ensure the viability and durability of such a device within the right-of-way.

The project will take longer to physically construct.

The addition of the underground concrete structure, relocation of utilities, installation of the mechanical devices and rebuilding of the road will take approximately six months longer at a minimum to construct than the original concepts. It should be noted that this is a best estimate, and does not account for unknown situations that may arise by utilizing a never before installed system being installed underground.

Maintenance

One of the areas that Town staff has been trying to address with this proposal is that of maintenance of this type of system. As a result, staff has analyzed the potential cost of maintaining this system. Again, since this is a prototype system, hard data as to the exact cost is hard to present, but we have attempted to put together a reasonable estimate of the types of operations we would see as regular maintenance items, typical configuration items (raising and lowering of curbs/moving of fencing), and periodic addressing of damage. Our estimates are based on three criteria:

- Maintenance to the system twice a year (spring and fall), that includes inspection, cleaning and repair. Estimated cost \$6,730.00 per year (attachment 4).
- The process for raising and lowering the system for events. This is figured at twice a month for six months (24 times). Estimated cost is \$25,000.00 per year (attachment 4).
- Ongoing damage maintenance.

As such, staff estimates that maintenance outlined in bullet one would cost approximately \$6,730.00 per year and bullet item two would be approximately \$25,000.00 per year, for a total of cost of **\$31,730.00** per year (attachment 4). Note that this does **not** include a cost for damage maintenance. Staff estimates that there will be an additional cost associated with this as fencing sections or curb sections become damaged. We anticipate that cars will indeed damage the fence sections that will function as the curb line when parking is the de facto position. Their proximity to opening doors and parallel parking almost assures damage that will require scheduled attention.

Miscellaneous

At the presentation of November 26, 2012, where the retractable curb was demonstrated, the *Voices* Group presented a handout that showed revenue potential to recoup some of the maintenance expense for the project. By the renting of the parking spaces, based on a formula as outlined in attachment 5, the group believes that revenues in excess of \$200,000.00 could possibly be generated. The group also stated that utilization of the curbs for the sale of advertising could be considered. A wider discussion about the renting of the parking spaces would have to occur.

Conclusion

Staff genuinely appreciates the efforts of the *Voices* professionals involved with the design of this intriguing proposal. Our sole goal was analysis, without a predetermined judgment. In fact, as previously stated, we indeed believe that it could be built, albeit at a higher cost and longer time frame. If so directed, staff will continue to work with the *Voices* group to conclusion. It should be pointed out, however, that there are still unknowns involved with this project, and all of the findings here are based on information we have reasonably applied to this point.



Scott E. Parker, AICP,
Assistant Town Manager

Attachments:

1. *Voices* Concept drawings
2. Street section
3. Budget estimates
4. Maintenance estimate
5. *Voices* Income and Maintenance attachment



KING STREET, LEESBURG, VA | "CURBS UP"

ILLUSTRATION PROVIDED BY DBI ARCHITECTS INC.
ATTACHMENT 1



FIXED CURB

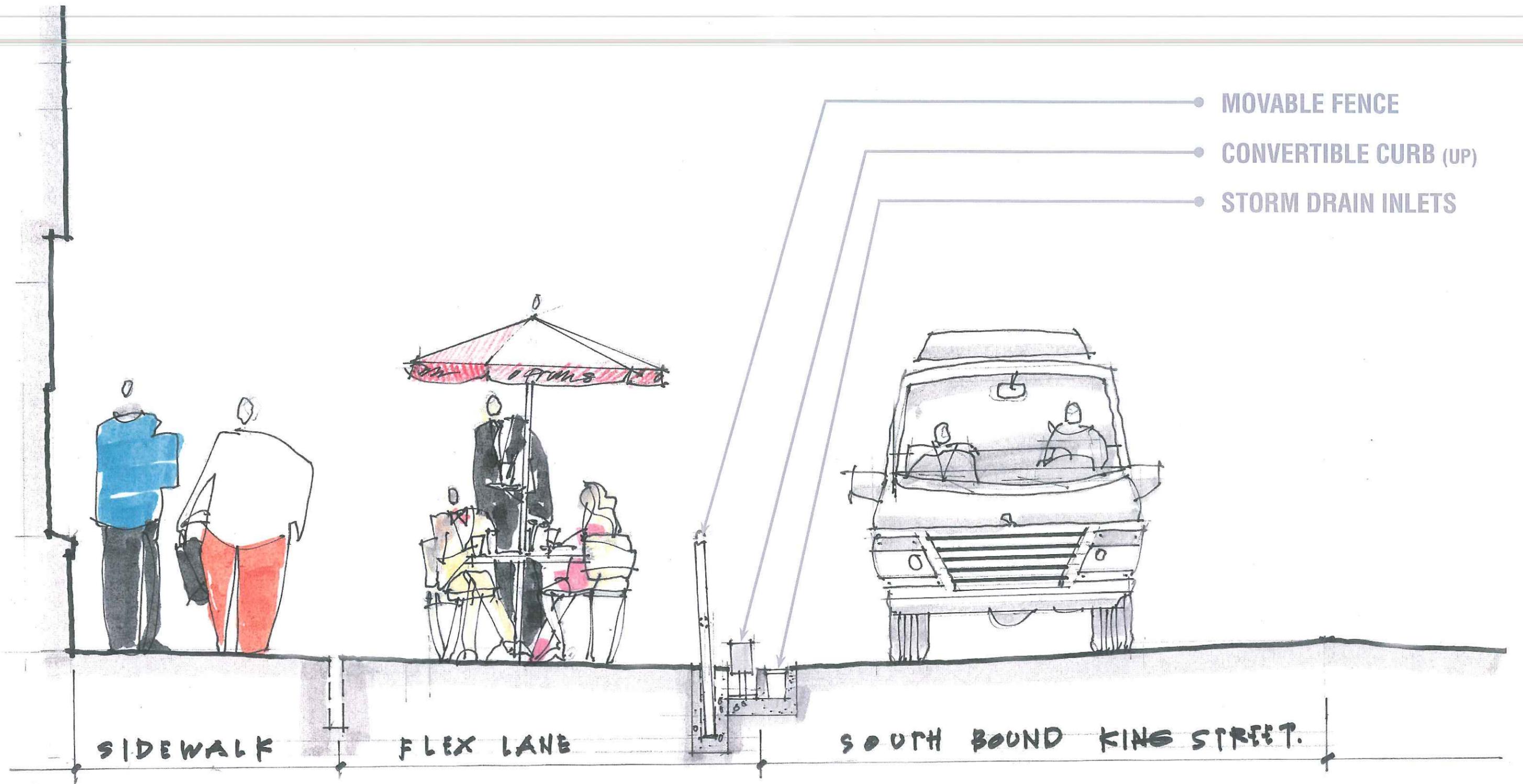
STORM DRAIN INLETS

MOVABLE FENCE

CONVERTIBLE CURB
(DOWN)

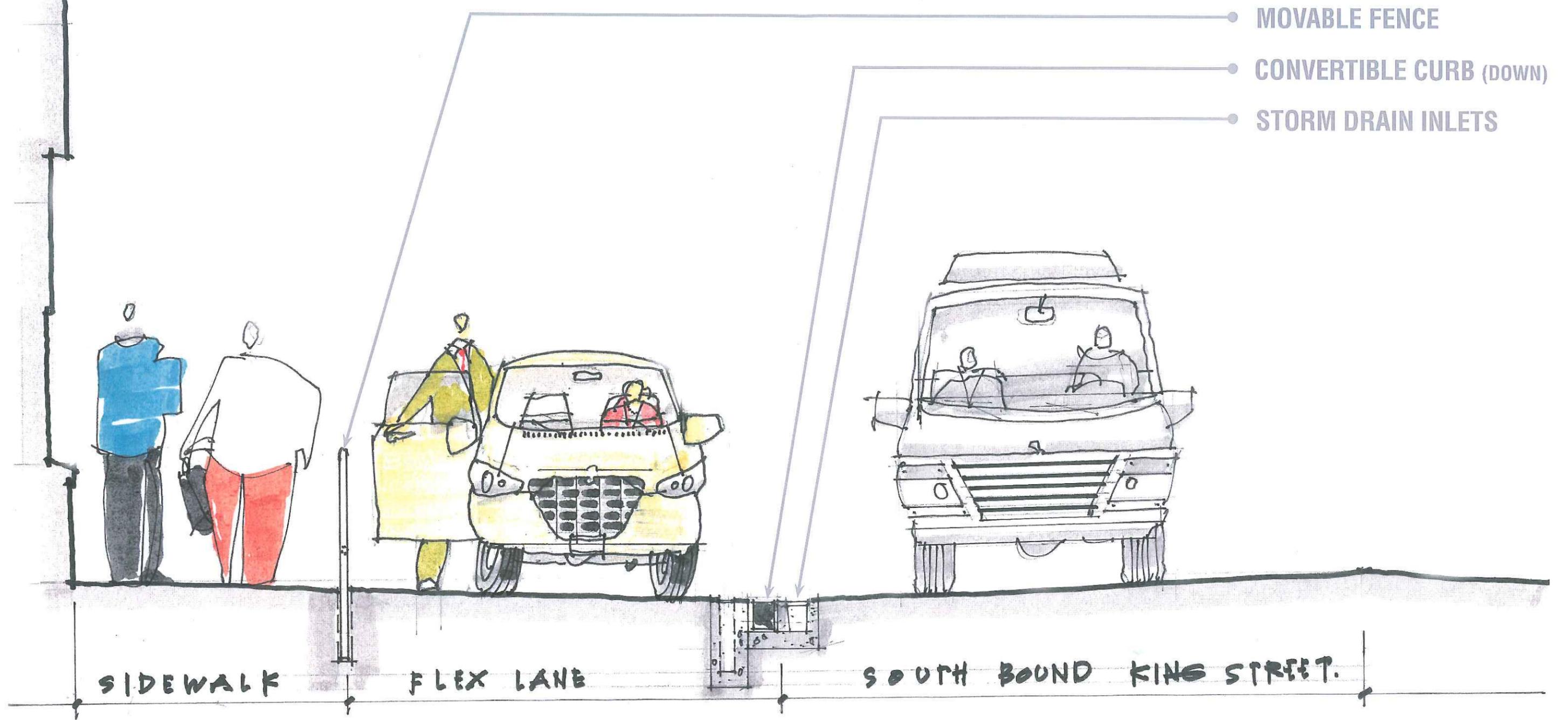
KING STREET, LEESBURG, VA | "CURBS DOWN"

ILLUSTRATION PROVIDED BY DBI ARCHITECTS INC.



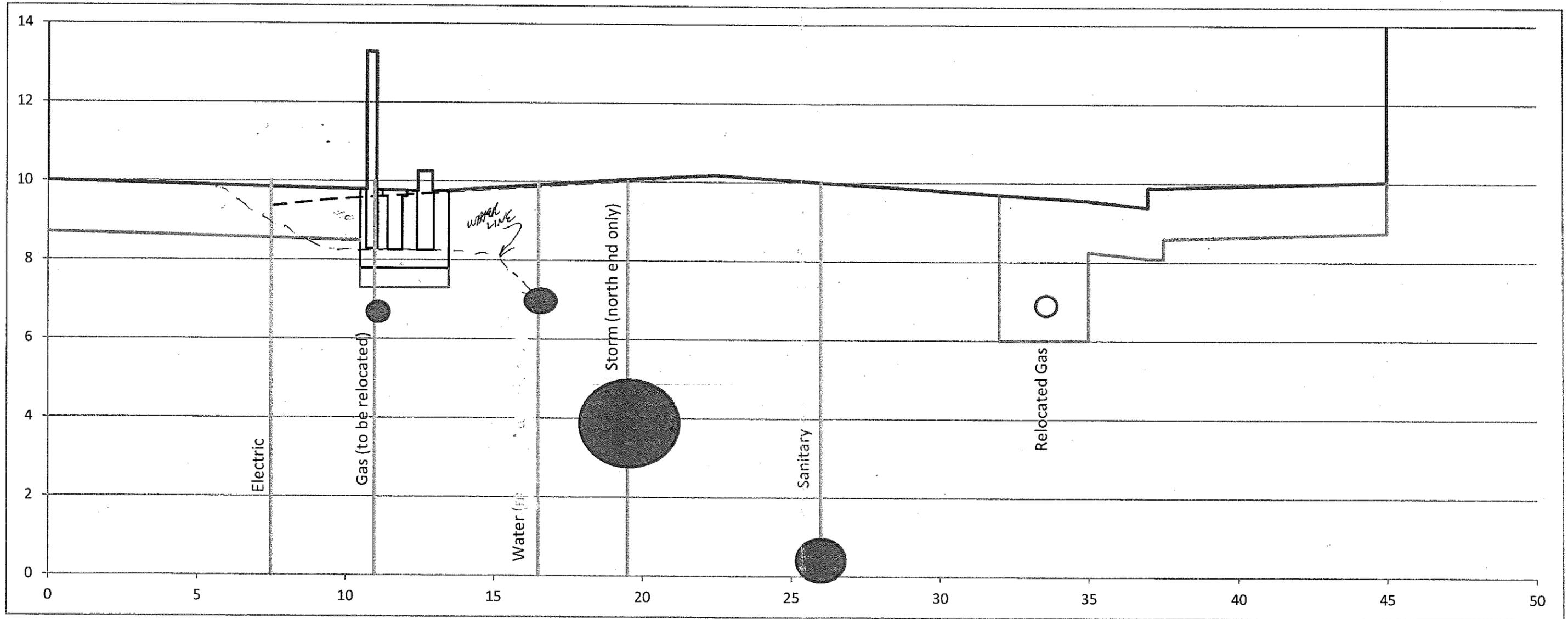
KING STREET, LEESBURG, VA | "CURBS UP"

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KING STREET, LEESBURG, VA | "CURBS DOWN"

ILLUSTRATION PROVIDED BY DBI ARCHITECTS INC.



ATTACHMENT 2

LEESBURG DOWNTOWN IMPROVEMENTS PROJECT

Detail Estimated Cost Comparison

Voices for an Amazing Place Concept vs. Base Widening Concept

April 16, 2013

| Item | Unit Cost | Units | Base Estimate | | Voices Estimate | |
|---|-----------|-------|---------------|-------------------|-----------------|---------------------|
| | | | Qty | Amount | Qty | Amount |
| General/ Demolition | | | | | | |
| Mob/Demob | \$ 50,000 | LS | 1 | \$ 50,000.00 | 1 | \$ 50,000 |
| Construction Survey | 20,000 | LS | 1 | 20,000 | 1 | 20,000 |
| Demo Curb and Gutter | 10 | LF | 1,900 | 19,000 | 1,100 | 11,000 |
| Demo Brick Sidewalk | 3 | SF | 15,000 | 45,000 | 9,000 | 27,000 |
| Demo CG12 | 300 | EA | 10 | 3,000 | 10 | 3,000 |
| Regular Excavation | 45 | CY | - | - | 1,400 | 63,000 |
| Mill 1 1/2" of Asphalt Pavement | 12 | SY | 3,000 | 36,000 | - | - |
| Remove & Dispose Inlet & MH | 500 | EA | 8 | 4,000 | 8 | 4,000 |
| Remove Parking Meters | 150 | EA | 20 | 3,000 | 20 | 3,000 |
| Remove Signs | 100 | EA | 15 | 1,500 | 15 | 1,500 |
| Inlet Protection | 500 | EA | 12 | 6,000 | 12 | 6,000 |
| Sawcut Asphalt | 5 | LF | 2,000 | 10,000 | 400 | 2,000 |
| Replace Access Doors to Basements | 1,500 | EA | 25 | 37,500 | 25 | 37,500 |
| Pre-survey and Post-survey Buildings | 3,000 | EA | 35 | 105,000 | 35 | 105,000 |
| | | | | | | |
| General/ Demolition Subtotal | | | | \$ 340,000 | | \$ 333,000 |
| Roadway | | | | | | |
| Curb and Gutter | \$ 25 | LF | 2,000 | \$ 50,000 | 1,100 | \$ 27,500 |
| Brick Sidewalk w/ Concrete Cradle | 20 | SF | 16,500 | 330,000 | 14,500 | 290,000 |
| CG12- Handicap Ramps | 1,500 | EA | 17 | 25,500 | 17 | 25,500 |
| Subbase- 8"-21B | 30 | TN | - | - | 1,450 | 43,500 |
| Base Asphalt- 4" BM-25 | 100 | TN | - | - | 1,100 | 110,000 |
| Surface Asphalt- 2" SM-9.5 | 110 | TN | - | - | 400 | 44,000 |
| Resurface Milled Area w/ 1-1/2" SM-9.5 | 110 | TN | 400 | 44,000 | - | - |
| "Street Print" Resin-Based Synthetic Asphalt | 225 | SY | 1,500 | 337,500 | 900 | 202,500 |
| Brick Pavers | 20 | SF | - | - | 3,000 | 60,000 |
| Retractable Curb | 600 | LF | - | - | 900 | 540,000 |
| Decorative Removable Fence Incl. Foundation | 75 | LF | - | - | 500 | 37,500 |
| Electronic Parking Meters | 7,000 | EA | 4 | 28,000 | 4 | 28,000 |
| Trash Receptacle /Benches | 1,200 | EA | 15 | 18,000 | 15 | 18,000 |
| | | | | | | |
| Roadway Subtotal | | | | \$ 833,000 | | \$ 1,426,500 |
| Storm Drainage | | | | | | |
| Manholes | 5,000 | EA | 2 | \$ 10,000 | 2 | \$ 10,000 |
| DI-3 Inlets | 6,500 | EA | 8 | 52,000 | 8 | 52,000 |
| 15" RCP | 60 | LF | 250 | 15,000 | 250 | 15,000 |
| 24" RCP | 200 | LF | 250 | 50,000 | 250 | 50,000 |
| Tie-in Roof Drains | 200 | EA | 35 | 7,000 | 35 | 7,000 |
| 24" RCP - parallel system | 400 | LF | | | 250 | \$ 100,000 |
| Manholes - tie in between curb system and 24" | 2 | EA | | | 10000 | \$ 20,000 |
| | | | | | | |
| Storm Drainage Subtotal | | | | \$ 134,000 | | \$ 254,000 |
| Watermain | | | | | | |
| 10" DIP W/M | 225 | LF | 0 | \$ - | 1000 | \$ 225,000 |
| Water Service | 2,250 | EA | 0 | - | 34 | 76,500 |
| Fire Hydrants | 4,250 | EA | 0 | - | 2 | 8,500 |
| | | | | | | |
| Watermain Subtotal | | | | \$ - | | \$ 310,000 |

ATTACHMENT 3

| Item | Unit Cost | Units | Base Estimate | | Voices Estimate | |
|---|-----------|-------|---------------|---------------------|-----------------|---------------------|
| | | | Qty | Amount | Qty | Amount |
| Pavement Markings & Maintenance of Traffic | | | | | | |
| MOT | 2,500 | DAY | 70 | \$ 175,000 | 85 | \$ 212,500 |
| Double Yellow Line | 4 | LF | 1,900 | 7,600 | 1,900 | 7,600 |
| STOP Bar | 12 | LF | 125 | 1,500 | 125 | 1,500 |
| Crosswalk 8" Wide White Line | 12 | LF | 300 | 3,600 | 300 | 3,600 |
| Signs | 450 | EA | 14 | 6,300 | 14 | 6,300 |
| Marking & MOT Subtotal | | | | \$ 194,000 | | \$ 231,500 |
| Landscape and Planting | | | | | | |
| Planter Box - Sliva Cell Structure | 7,500 | EA | 8 | \$ 60,000 | 8 | \$ 60,000 |
| Street Trees | 500 | EA | 8 | 4,000 | 8 | 4,000 |
| Landscape Subtotal | | | | \$ 64,000 | | \$ 64,000 |
| Electric / Lighting | | | | | | |
| Electric- Street Light Conduit | 25 | LF | 1,000 | \$ 25,000 | 1,000 | \$ 25,000 |
| Electric- Junction Box | 1,600 | EA | 5 | 8,000 | 5 | 8,000 |
| Light Bases | 500 | EA | 6 | 3,000 | 6 | 3,000 |
| Street Lights | 13,000 | EA | 6 | 78,000 | 6 | 78,000 |
| Electric / Lighting Subtotal | | | | \$ 114,000 | | \$ 114,000 |
| Engineering and Testing | | | | | | |
| Engineering Design | 1 | EA | | \$ 250,000 | | \$ 350,000 |
| Retractable Curb Prototype and Testing | | | | \$ - | | \$ 150,000 |
| Engineering and Testing Subtotal | | | | \$ 250,000 | | \$ 500,000 |
| TOTAL | | | | \$ 1,929,000 | | \$ 2,983,000 |

LEESBURG DOWNTOWN IMPROVEMENTS PROJECT

Estimated Cost Comparison

Voices for an Amazing Place Concept vs. Base Widening Concept

April 16, 2013

| MAJOR COST ITEM | BASE CONCEPT Estimated Cost | VOICES FOR AN AMAZING PLACE CONCEPT Estimated Cost | COMMENTS |
|---|--------------------------------|---|--|
| MOBILIZATION / ADMINISTRATION | \$ 175,000 | \$ 175,000 | |
| DENOUITON | \$ 85,500 | \$ 114,500 | Removal and replacement of pavement necessary due to relocation of waterline, gas line, service connections, and installation of new retractable curb and storm drain |
| EROSION & SEDIMENT CONTROL | \$ 6,000 | \$ 6,000 | |
| CURB AND GUTTER | \$ 50,000 | \$ 27,500 | No new curb on west side with Voices concept |
| SIDEWALK AND HANDICAP RAMPS | \$ 355,500 | \$ 345,500 | |
| PAVEMENT RECONSTRUCTION | \$ - | \$ 197,500 | Removal and replacement of pavement necessary due to relocation of waterline, gas line, service connections, and installation of new retractable curb and storm drain |
| MILL AND OVERLAY | \$ 80,000 | \$ - | Overlay not required with Voices concept since pavement will be replaced |
| STAMPED ASPHALT | \$ 337,500 | \$ 202,500 | |
| BRICK PAVERS | \$ - | \$ 60,000 | Paver Surface within convertible parking lane |
| RETRACTABLE CURB AND REMOVABLE FENCE | \$ - | \$ 577,500 | From Cornwall to Loudoun |
| PARKING METERS | \$ 28,000 | \$ 28,000 | New electronic parking meters |
| STREET FURNITURE AND TREES | \$ 119,500 | \$ 119,500 | |
| STORM DRAINAGE | \$ 134,000 | \$ 254,000 | New storm drain systems on both North King and South King to capture runoff at bumpouts, and to provide secondary relief if trench drain is clogged. |
| PARALLEL STORM DRAINAGE TO RETRACTABLE CURB | | \$ 70,000 | New storm drain system that runs parallel to retractable curb to collect water that gets into trench, to provide a secondary relief if trench drain is clogged. Between mid-block crosswalk and Loudoun Street and from Cornwall to Market |
| WATERLINE | \$ - | \$ 310,000 | Waterline conflict with retractable curb |
| PAVEMENT MARKING AND SIGNING | \$ 19,000 | \$ 19,000 | |
| MAINTENANCE OF TRAFFIC | \$ 175,000 | \$ 212,500 | Construction period longer with retractable curb. Assumes all night work with street open to traffic during the day. |
| ELECTRIC AND LIGHTING | \$ 114,000 | \$ 114,000 | |
| ENGINEERING AND TESTING | \$ 250,000 | \$ 500,000 | Development of prototype and testing of retractable curb |
| TOTAL | \$ 1,929,000 | \$ 3,303,000 | |

ORDER OF MAGNITUDE COST DIFFERENCE

\$750,000 to \$1,000,000

Estimated Maintenance of Retractable Curb Sections

Spring/Fall Maintenance

Supervisor & 6 men @ 8 hrs ea = \$2,007.56
Vactor w/oper 4 hrs @ \$125.00 ea = \$500.00
Message boards total 6 @ 16 hrs ea = 96 hrs @ \$5.57/hr \$534.72
Pickup 2 @ 8 hrs ea = 16 hrs @ \$7.06/hr = \$112.96
Equipment Trailer 8 hrs @ \$25.00 hr = \$200.00
Tower Lights 8 hrs @ \$1.20 hr = \$9.60
\$3,364.84 X 2 = \$6,730.00

Raise or Lower curb/fence sections

Supervisor & 3 crews 2 men ea @ 4 hrs ea = \$882.12
Pickup 2 @ 4 hrs ea = 8 hrs @ 7.06 hr = \$56.48
Equipment Trailer @ 4 hrs @ \$25.00 hr = \$100.00
\$1,038.60 X 24 = \$25,000.00
\$31,730.00 /year

ATTACHMENT 4

Kicked to the Curb

25 weeks of use, May through October, at two days per week at 22 spaces rented equals 1100 parking space rentals per year.

Gross income potential:

| | |
|--|-----------|
| @ \$50 per night | \$55,000 |
| (16 patrons, 3 turns per night equals \$1.04 per patron) | |
| @ \$75 per night..... | \$82,500 |
| (16 patrons, 3 turns per night equals \$1.56 per patron) | |
| @ \$100 per night | \$110,000 |
| (16 patrons, 3 turns per night equals \$2.08 per patron) | |

Maintenance, Operational, and Capital Cost:

Capital Cost

| | |
|--|-----------|
| 44 panels @ \$1,000 (exclusive of sleeves)..... | \$44,000 |
| 44 10' steel rising curb units w/drain grills (no concrete work) @ \$1500..... | \$66,000 |
| Installation..... | \$5,000 |
| | <hr/> |
| | \$115,000 |

Operation and Maintenance (annual)

Set up and take down conversion time 5:00 pm - 6:00 pm and 11:00 pm -12:00 am.

| | |
|---|----------|
| Set up and take down: 2 workers @ 2 hours @ \$25 | \$5,000 |
| Wash sidewalk and flex lane weekly : 2 workers @ 2 hours @ \$25 | \$2,500 |
| Steam clean gum, stains, etc. annually..... | \$1,000 |
| Re-paint fences every two years @ \$2,000..... | \$1,000 |
| Town employee oversight | \$10,000 |
| | <hr/> |
| | \$19,500 |

ATTACHMENT 5
(SUBMITTED BY VOICES)

Financing

Assumes 50% of income to finance capital.

@ \$50 per space = \$27,500 @ 3% @ 25 yr. amort. = \$475,000 +/-
(debt service plus \$19,500 equals 85% of maximum rents)

@ \$75 per space = \$41,250 @ 3% @ 25 yr. amort. = \$725,000 +/-
(debt service plus \$19,500 equals 74% of maximum rents)

@ \$100 per space = \$55,000 @ 3% @ 25 yr. amort. = \$950,000 +/-
(debt service plus \$19,500 equals 68% of maximum rents)