Memorandum

CITY OF DALLAS

DATE December 31, 2015

TO Members of the Budget, Finance & Audit Committee: Jennifer S. Gates (Chair), Philip T. Kingston (Vice Chair), Erik Wilson, Rickey D. Callahan, Scott Griggs, Lee M. Kleinman

SUBJECT FY 2015-16 Street Work-Plan Program

On January 4, 2016 the Budget, Finance and Audit Committee will be briefed on the FY 2015-16 Street Work-Plan Program. The briefing is attached for your review.

Please let me know if you need additional information.

Jill A. Jordan, P.E.
Assistant City Manager

Attachment

c: Honorable Mayor and Members of City Council
A.C. Gonzalez, City Manager
Warren M.S. Ernst, City Attorney
Rosa A. Rios, City Secretary
Craig D. Kinton, City Auditor
Daniel F. Solis, Administrative Judge
Ryan S. Evans, First Assistant City Manager
Joey Zapata, Assistant City Manager
Mark McDaniel, Assistant City Manager
Eric D. Campbell, Assistant City Manager
Jeanne Chipperfield, Chief Financial Officer
Sana Syed, Public Information Officer
Elsa Cantu, Assistant to the City Manager

City of Dallas

Department of Street Services

FY 2015-2016
Street Work-Plan Program

ECONOMIC VIBRANCY

January 4, 2016

Budget, Finance and Audit Committee

STREETWORKS

PURPOSE

- Introduce the Streets Services Department's:

FY 2015-2016 Streets Repair Work-Plan Program

Street Rehabilitation

Street Restoration

BACKGROUND

- 1995 - Council adopted a street satisfaction goal of 75% to be completed by 2015
- 1996 - Council accelerated the street satisfaction goal of 75% to be completed by 2010
- 2006 - Street condition goals revised and adopted by City Council:
  - 87% Satisfactory Citywide
  - 80% (minimum) satisfactory in each Council District

BACKGROUND

- Aug 2015, City Council was briefed on the Department of Street Services budget
- Sep 2015, City Council approved a $16.8M* increase to the Department of Street Services budget for use in repairing streets and alleys
  - Intent to **contribute** to reach:
    - Zero (0) Percent Degradation Overall

*Additional $7.3M given to Public Works for Street Resurfacing

BACKGROUND

- **THREE DEPARTMENTS IMPACT/CONTRIBUTE TO STREET SATISFACTION CONDITION**
  - **PUBLIC WORKS**
    - Capital programs are the primary vehicles for increasing Satisfaction Rating
  - **DALLAS WATER UTILITIES**
    - Assists in improving street condition as a by product of replacement of water mains
  - **STREET SERVICES DEPARTMENT**
    - Pay as you go (General O&M) aids process by slowing degradation

STREET SELECTION PROCESS

- **Step 1: Public Works Pavement Evaluation**
  - Pavement Condition Index (PCI)
    - Is National Industry's and our street rating technology to assess the conditions of all city streets
    - PCI matrix ultimately grades each street as **A, B, C, D** and **E**:
      - **A** is best
      - **E** is worst
    - Provides a base line for STS to determine best street candidates upon which to perform repairs
    - PCI Streets List given to STS Department staff for thorough field analysis and vetting possible conflicts

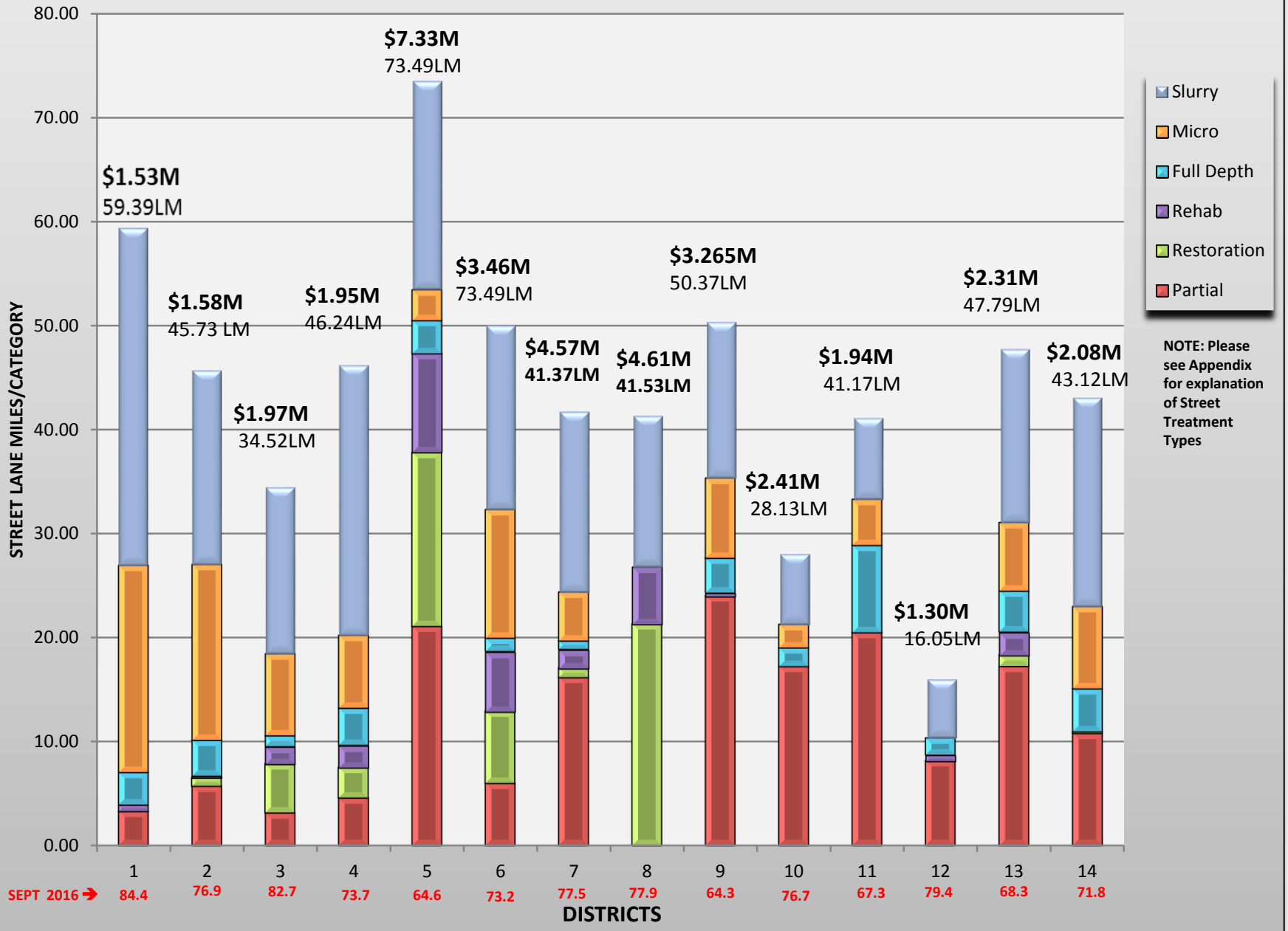
STREET SELECTION PROCESS

- **Step 2: Street Services candidate evaluation (July-Oct)**
  - Equitable distribution of street lane mile repairs is given to all 14 Council Districts
    - ***Overall goal of 80% to 87% Satisfaction Rating is targeted for each Council District***
      - Perform visual field inspections of all street candidates in list
      - All streets are cross referenced with other stakeholders (i.e., water, sanitary and storm sewer collection pipe project replacements, etc.)
    - ***Consideration is given to high traffic areas***
    - **Leveraging dollars with matching funds for regional benefits, such as Dallas County and NCTCOG**
    - **Council input, treatment needs, SRs and previous commitments**
    - The streets list becomes finalized
- **Step 3: Projects selected and work begins (Oct-Dec)**

2015 SATISFACTION RATING

SATISFACTION RATING %		
DISTRICT	JAN 2015	SEP 30, 2015
1	79.3	84.8
2	78.5	75.9
3	85.9	83.9
4	79.8	75.0
5	66.4	62.7
6	73.5	72.7
7	79.1	77.4
8	77.8	77.0
9	64.4	62.8
10	78.6	77.3
11	71.5	67.9
12	86.4	82.5
13	70.7	67.9
14	73.5	71.5
CW	**76.1**	**74.2**

FY 2016 / STREET REPAIR PROGRAM
STS Lane Miles: 619



CURRENT/PROJECTED STREET SATISFACTION RATING

SATISFACTION RATING %			
DISTRICT	JAN 2015	SEP 30, 2015	SEP 30, 2016
1	79.3	84.8	84.4
2	78.5	75.9	76.9
3	85.9	83.9	82.7
4	79.8	75.0	73.7
5	66.4	62.7	64.6
6	73.5	72.7	73.2
7	79.1	77.4	77.5
8	77.8	77.0	77.9
9	64.4	62.8	64.3
10	78.6	77.3	76.7
11	71.5	67.9	67.3
12	86.4	82.5	79.4
13	70.7	67.9	68.3
14	73.5	71.5	71.8
CW	**76.1**	**74.2**	**74.2**
ACHIEVES 0% DEGRADATION			

NEXT STEPS

- **Complete meeting with individual Council Members to finalize lists**
- **Communication Strategy**
  - **Will inform citizenry through:**
    - Project signage with contact information
    - Door hangers before construction starts
    - PIO newsfeeds
    - Ongoing personal contact by project as may become necessary
    - Internet access: www.dallascityhall.com

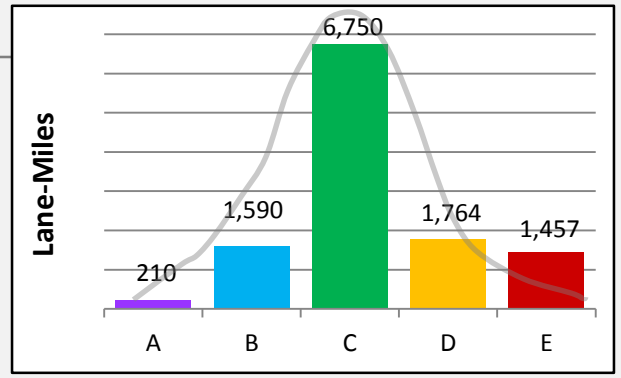
QUESTIONS ?

Appendix

1. Street Degradation Curve
2. Effect of the FY16 Work Plans on “Percent Satisfactory” – by Council District
3. Street Treatment Type Descriptions

Street Degradation Curve, in Lane-miles

Streets degrade at varying rates over their life of up to 50 years, from as little as 0.3% to over 10% annually



Pavement Condition Index

100
90
80
70
60
50
40
30
20
10
0

A-streets:
mild deterioration

B-streets:
moderate deterioration

C-streets:
rapidly-increasing deterioration

D-streets:
severe deterioration

E-streets:
severe deterioration tapering off with time

Mid-to-Low "C" streets receive ***proactive care*** by Street Services

"D" streets require ***resurfacing*** by Public Works.
Street Services can provide only temporary relief.

"E" streets require ***reconstruction*** by Public Works.
Street Services can provide only temporary relief.

0

50

Typical Pavement Life (in years)

Effect of the FY16 Work Plans on "Percent Satisfactory" - by Council District

Evaluation includes Degradation (by national curves), increased funding in STS and PBW, and consideration of CD9, CD11 and CD13 funds

	FY14 (with bond and STS work included)			DWU - FY14	FY14: ALL		FY15 - PBW (bond works included)			STS FY15					DWU FY14	FY15: ALL		Prelim FY16 Assessment - without bonds, STS or DWU				STS FY16 (projected)										PBW'S FY16 Bonds (projected)					DWU (proj'd)	FY16 SUMMARY (projected)			
CD	Total LM in CD	UNSAT LM	% SAT (thru Sept)	DWU (LM)	TOTAL UNSAT LM (thru Sept)	% SAT (thru Sept)	Total LM	UNSAT LM	% SAT (thru Sept)	Partial: HT	Partial: OPS	Rehab: OPS	Restor: OPS	STS Totals	DWU: LM	TOTAL UNSAT LM (thru Sept)	% SAT (thru Sept)	Assm'd LM	Project'd Increase in UNSAT LM	Project'd TOTAL UNSAT LM	Proj'd % SAT (thru Sept)	Rehab: OPS	Restor: Add'l $	Restor: OPS	Partial: HT	Partial: OPS	New LM to address CD9, 11 &13	Totals	Resurf LM	Orig 2006 bond for 2016	Orig 2012 bond for 2016	Accel'ed $7.3M bonds	TOTALS	total LM	UNSAT LM at Sept 2016	% SAT	Change from FY15	CD
1	750	154.9	79.3	6.1	148.8	80.2	751	125.6	83.3	1.53	3.95	1.36	1.09	7.9	3.6	114.1	84.8	751	18.7	132.7	82.3	0.61	0.00	0.00	0.00	1.20	0.00	**1.8**	9.64	0.00	0.00	0.00	**9.64**	**4.0**	117.3	84.4	-0.4	1
2	936	201.6	78.5	7.6	194.0	79.3	938	240.1	74.4	2.49	6.21	1.43	0.85	11.0	2.7	226.4	75.9	938	24.5	250.9	73.3	0.14	0.39	0.46	2.65	2.16	0.00	**5.8**	7.92	0.00	0.00	4.82	**12.74**	**15.4**	217.0	76.9	1.0	2
3	991	139.4	85.9	0.5	138.9	86.0	992	168.9	83.0	2.96	2.31	2.25	0.93	8.5	1.0	159.4	83.9	992	29.7	189.2	80.9	1.66	3.67	1.06	0.00	0.00	0.00	**6.4**	7.86	0.00	0.00	0.30	**8.16**	**2.5**	172.1	82.7	-1.3	3
4	924	187.0	79.8	5.5	181.5	80.3	924	248.1	73.1	1.89	4.36	2.55	1.53	10.3	6.4	231.4	75.0	924	32.8	264.2	71.4	2.11	1.40	1.55	0.00	4.57	0.00	**9.6**	5.67	0.00	0.00	2.28	**7.95**	**3.9**	242.7	73.7	-1.2	4
5	709	238.1	66.4	4.0	234.1	67.0	710	282.7	60.2	3.50	7.68	4.77	1.03	17.0	0.9	264.8	62.7	710	32.9	297.8	58.0	9.46	12.49	4.26	2.30	13.47	0.00	**42.0**	0.00	0.00	0.00	0.00	**0.00**	**4.4**	251.4	64.6	1.9	5
6	1,069	283.0	73.5	6.5	276.5	74.1	1,071	309.0	71.1	2.93	6.03	2.59	0.87	12.4	4.8	291.8	72.7	1,071	20.6	312.3	70.8	5.73	5.48	1.49	0.00	1.71	0.00	**14.4**	4.27	0.00	0.00	1.22	**5.49**	**5.9**	286.5	73.2	0.5	6
7	873	182.1	79.1	2.3	179.8	79.4	874	208.8	76.1	2.40	4.80	2.33	0.91	10.4	1.3	197.1	77.4	874	28.1	225.1	74.2	1.76	0.00	0.97	7.21	4.53	0.00	**14.5**	1.40	0.00	10.38	0.00	**11.78**	**2.6**	196.3	77.5	0.1	7
8	877	194.3	77.8	3.3	191.0	78.2	877	213.2	75.7	4.71	1.90	2.56	1.32	10.5	1.2	201.5	77.0	877	20.2	221.7	74.7	5.49	17.54	3.79	0.00	0.00	0.00	**26.8**	0.16	0.00	0.00	0.00	**0.16**	**1.3**	193.5	77.9	0.9	8
9	909	323.1	64.4	2.4	320.7	64.7	909	360.8	60.3	3.82	7.54	3.02	0.87	15.2	7.3	338.3	62.8	909	40.9	379.1	58.3	0.29	0.00	0.00	12.24	12.50	10.44	**35.5**	12.72	0.00	0.00	1.13	**13.85**	**5.5**	324.3	64.3	1.5	9
10	733	157.1	78.6	0.5	156.6	78.6	734	181.6	75.2	2.36	5.06	0.39	0.00	7.8	7.0	166.8	77.3	734	24.6	191.4	73.9	0.00	0.00	0.00	4.58	8.65	0.00	**13.2**	4.55	0.00	1.55	0.00	**6.10**	**1.3**	170.8	76.7	-0.5	10
11	623	177.8	71.5	1.1	176.7	71.6	623	215.8	65.3	3.68	6.72	0.65	0.89	11.9	4.0	199.9	67.9	623	33.4	233.3	62.5	0.00	0.00	0.00	4.45	7.72	6.21	**18.4**	4.58	0.00	0.00	3.49	**8.07**	**3.3**	203.5	67.3	-0.6	11
12	626	85.1	86.4	0.7	84.4	86.5	626	119.2	80.9	3.05	4.69	1.29	0.36	9.4	0.4	109.4	82.5	626	29.7	139.1	77.8	0.54	0.00	0.00	0.57	5.29	0.00	**6.4**	2.87	0.00	0.00	0.00	**2.87**	**0.8**	129.0	79.4	-3.1	12
13	1,010	296.2	70.7	6.2	290.0	71.3	1,010	350.2	65.3	2.70	6.91	3.95	1.50	15.1	11.0	324.1	67.9	1,010	39.7	363.8	64.0	2.19	0.86	0.27	6.12	5.62	4.19	**19.3**	10.94	0.00	0.00	2.80	**13.74**	**10.1**	320.7	68.3	0.3	13
14	741	196.5	73.5	1.3	195.2	73.6	740	232.6	68.6	4.73	9.23	1.07	0.09	15.1	6.4	211.1	71.5	740	26.5	237.6	67.9	0.00	0.00	0.17	2.90	4.00	0.00	**7.1**	8.12	0.00	2.36	7.17	**17.65**	**4.0**	208.9	71.8	0.3	14
ALL	11,769	2,816.2	76.1	48.0	2,768.2	76.5	11,777	3,256.6	72.3	42.76	77.40	30.22	12.25	162.6	58.0	3,036.0	74.2	11,777	402.3	3,438.2	70.8	29.98	41.83	14.02	43.02	71.42	20.84	221.1	80.70	0.00	14.30	23.21	118.20	65.0	3,033.9	74.2	0.0	ALL

Notes:

1. FY16 Percent Satisfactory is based on the Annual 2016 PROJECTIONS.

2. Assumes all rehab, restoration, reconstruction and resurface will be completed in FY16.

3. Projected increase in Unsat LM for 2016 based data from Worksheet "C Falling To D", using national deterioration curves for the "low C" range of PCI values.

Slurry Seal/MicroSurfacing for "B" and "C" rated streets

Full-Depth Asphalt Repair for "C" rated streets

Slurry Seal - This treatment for CONCRETE STREETS WITH ASPHALT SURFACE consists of a ¼-inch layer of sand and fine stone mixed with asphalt emulsion. This seals and smooths the surface and conceals scars from previous repairs. It is used predominately for residential roads with curb and gutter. The work is outsourced to a specialized contractor – after Street Services performs preparation work (such as minor base repair and crack sealing).
Cost: $13K per lane-mile. **Life:** 5-7 years.

Micro Surfacing – A treatment for CONCRETE STREETS WITH ASPHALT SURFACE which places a ¼-inch layer of crushed stone mixed with asphalt emulsion. This seals and smooths the surface and conceals scars from previous repairs. It is used predominately for higher-traffic-volume streets with curb and gutter. It is more expensive than slurry seal, but cures more quickly. This work is outsourced to a specialized contractor – after Streets Services prepares the site (doing minor base repair and crack sealing, curb & gutter repair).
Cost: $19K per lane-mile. **Life:** 5-7 years.

Full-depth Asphalt Repair - A treatment for ASPHALT STREETS to repair the surface and base failures. Repairs are typically larger than a pothole, but smaller than either Street Resurfacing or Street Rehabilitation projects. After the failed area is cut square and removed, a new base is placed and compacted and an asphalt surface is put in place.
Cost: $43K per lane-mile. **Life:** 5-7 years.

Partial Reconstruction for
"C" rated (and some "D" rated) **streets**

Partial Reconstruction - This is a method used on CONCRETE STREETS. It is **removal and replacement of large, failed sections**, including breakout and removal of old pavement, repair of any base failures, and placing new concrete. To be a candidate for this repair, residential and thoroughfare streets must have less than 25% of failed area.
Cost: $114K per lane-mile with curb-and-gutter repair. **Life:** 10-12 years.

Street Rehabilitation for "D" rated streets

Street Restoration for "E" rated streets

Rehabilitation - A treatment for ASPHALT STREETS when a large portion of the surface and the base have deteriorated to an unsatisfactory level. It includes the full-depth repair of base failures, followed by a chip seal, and a new two-inch layer of hot mix asphalt placed over the entire treated segment. Candidate streets are predominately residential asphalt surfaced streets without curb and gutter. **Cost:** $150K per lane-mile. **Life:** 10-12 years.

Restoration - A treatment for ASPHALT STREETS when the entire surface and the base have deteriorated to an unsatisfactory level. It includes rebuilding the entire base by recycling the old base and surface materials into a new base, followed by a chip seal, and new two-inch layer of hot mix asphalt placed over the entire treated segment. Candidate streets are predominately residential asphalt surfaced streets without curb and gutter. **Cost:** $164K per lane-mile. **Life:** 18-20 years.

Resurfacing of Pavement for "D" rated streets

Re-Surfacing – This treatment removes the entire asphalt surface, and pulverizes and recycles the old material with new asphalt binder. The new asphalt surface is then placed over the entire surface, compacted, and smoothed to a proper finish. Curb and gutter repair, if needed, is accomplished with the re-surfacing efforts.
Cost: $245K per lane-mile. **Life:** 15-20 years (with maintenance).

Full Reconstruction for "E" rated streets

Reconstruction - This process is the removal of an existing street with extensive failures and/or badly deteriorated condition. In the process, the pavement is broken and removed (and often recycled), as is the base. Drainage concerns are addressed with this process. The sub-base may be reconditioned as needed, then a new base is placed and compacted. The new concrete surface pavement is then placed, as shown above. The construction work is outsourced under bond-issued funding.
Cost: $1.1 M per lane-mile. **Life:** 20-50 years (with maintenance).

dallas water utilities
city of dallas

Street Treatments Managed by Dallas Water Utilities

Street and alley repairs by the Dallas Water Utilities are associated with pipeline replacement. For asphalt streets the City policy requires that an entire lane be reconstructed at the location for where the pipeline is replaced. From joint to joint for concrete streets.