

# City of Madison Resurfacing Program



# City Engineering Division

## RESURFACING PROGRAM

- ⇒ Resurface about 7 miles of streets throughout the City
- ⇒ Resurfacing program which includes resurfacing, crack filling, mill/overlay and seal coat is designed to improve the quality of the street and delay the need for total reconstruction
- ⇒ Deficient C&G sections are replaced
- ⇒ Terraces are restored (topsoil, seed & matting)
- ⇒ Pavement is milled or pulverized
- ⇒ New layer(s) of asphalt are paved
- ⇒ Project Highlights

# SELECTION PROCESS

- ⇒ How are streets selected for resurfacing?
- ⇒ Streets rated bi-annually
  - PASER Scale (UW-Madison)
- ⇒ Coordination with other public works projects
- ⇒ Group streets around City for cost/efficiency

# RATING SYSTEM

- ⇒ PASER rates streets from 1 – 10
- ⇒ **Resurface** streets with a pavement rating of 5 or less and a c&g rating of 6 or greater
- ⇒ **Reconstruct** streets with lower ratings (these streets require extensive replacement and not cost effective for resurfacing)

# State of Our Streets

<b>All Streets:</b>		<b>2001</b>	<b>2010</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
Total Miles		682.38	769.14	779.69	784.78	789.95	798.15	800.41	802.08
Total Lane Miles			1717.91	1735.97	1752.04	1761.55	1779.15	1781.79	1785.04
Average Surface Year		1982	1991	1994	1994	1995	1996	1996	1997
Average Curb Rating		6.86	7.19	7.28	7.28	7.30	7.36	7.43	7.41
Average Pavement Rating		6.53	6.90	6.60	6.64	6.63	6.59	6.77	6.47
<b>All Streets by Class</b>		<b>2001</b>	<b>2010</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Arterial Streets</b>									
Total Miles		75.21	93.35	94.97	95.16	95.82	99.50	96.29	95.67
Total Lane Miles			312.57	324.00	325.74	327.56	334.92	326.95	324.86
Average Surface Year		1986	1996	2002	2002	2003	2003	2004	2005
Average Curb Rating		7.64	7.37	7.66	7.60	7.58	7.68	7.71	7.68
Average Pavement Rating		6.85	7.32	7.00	6.90	6.95	6.79	7.02	6.57
<b>Collector Streets</b>									
Total Miles		153.99	166.48	168.00	169.38	169.68	171.83	172.55	171.88
Total Lane Miles			376.79	373.56	380.66	380.91	385.96	387.48	387.33
Average Surface Year		1987	1996	2000	2001	2002	2002	2002	2003
Average Curb Rating		7.05	7.42	7.53	7.60	7.63	7.64	7.70	7.68
Average Pavement Rating		6.80	7.08	6.68	6.84	6.82	6.68	6.84	6.52
<b>Local Streets</b>									
Total Miles		453.18	509.31	516.72	520.24	524.45	526.81	531.57	534.61
Total Lane Miles			1028.54	1038.41	1045.64	1053.08	1058.27	1067.36	1072.85
Average Surface Year		1980	1988	1991	1992	1992	1993	1994	1994
Average Curb Rating		6.67	7.09	7.13	7.12	7.14	7.20	7.29	7.28
Average Pavement Rating		6.39	6.76	6.51	6.53	6.51	6.52	6.70	6.44

802 miles of streets. Ave curb and pavement rating is 7

# State of Our Streets

Arterial, Collector and Local	2001	2010	2014	2015	2016	2017	2018	2019
% Miles at or below Cond State 10	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
% Miles at or below Cond State 9	94.5%	97.4%	98.5%	97.7%	97.9%	96.8%	94.7%	96.0%
% Miles at or below Cond State 8	87.7%	89.9%	92.2%	93.4%	94.1%	93.9%	91.9%	92.9%
% Miles at or below Cond State 7	65.0%	53.2%	68.2%	62.0%	57.6%	60.8%	51.9%	78.4%
% Miles at or below Cond State 6	57.2%	37.4%	38.4%	40.7%	42.6%	44.6%	43.1%	44.4%
% Miles at or below Cond State 5	32.1%	25.0%	25.2%	24.6%	26.5%	26.6%	24.8%	25.6%
% Miles at or below Cond State 4	9.3%	6.5%	13.9%	14.4%	15.4%	15.3%	13.6%	13.1%
% Miles at or below Cond State 3	1.8%	0.7%	3.1%	2.7%	2.8%	3.3%	2.9%	2.4%
% Miles at or below Cond State 2	0.7%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%
% Miles at or below Cond State 1	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
% Miles at or below Cond State 0	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%

Goal (26%) is centered around the number of streets rated at or below 5.

# State of Our Arterial Streets

Arterial	2001	2010	2014	2015	2016	2017	2018	2019
% Miles at or below Cond State 10	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
% Miles at or below Cond State 9	98.3%	92.0%	97.6%	98.0%	97.9%	97.8%	95.1%	95.1%
% Miles at or below Cond State 8	87.0%	76.6%	84.7%	89.8%	89.7%	93.6%	90.7%	92.9%
% Miles at or below Cond State 7	58.4%	47.0%	60.4%	56.4%	46.1%	53.8%	42.5%	78.9%
% Miles at or below Cond State 6	46.3%	28.2%	32.7%	37.8%	38.9%	37.8%	36.5%	40.6%
% Miles at or below Cond State 5	23.3%	15.8%	16.5%	18.4%	23.0%	26.3%	24.6%	25.6%
% Miles at or below Cond State 4	2.0%	8.1%	6.3%	7.1%	7.5%	8.8%	6.9%	8.6%
% Miles at or below Cond State 3	0.5%	0.8%	1.9%	2.4%	2.3%	2.5%	1.6%	1.1%
% Miles at or below Cond State 2	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% Miles at or below Cond State 1	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% Miles at or below Cond State 0	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Goal: less than 15% of total miles of arterial streets at or below 5.

Projects in 2020: H Crossing, Packers, Gammon Rd, Cottage Grove

# State of Our Collector Streets

Collector	2001	2010	2014	2015	2016	2017	2018	2019
% Miles at or below Cond State 10	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
% Miles at or below Cond State 9	94.2%	96.9%	98.2%	96.4%	97.1%	96.7%	95.1%	96.1%
% Miles at or below Cond State 8	86.1%	89.0%	92.3%	90.8%	93.1%	93.0%	91.5%	92.8%
% Miles at or below Cond State 7	58.3%	48.5%	64.6%	58.8%	51.7%	61.5%	53.1%	78.0%
% Miles at or below Cond State 6	48.6%	32.4%	39.8%	39.0%	41.4%	44.3%	43.1%	46.5%
% Miles at or below Cond State 5	27.8%	19.3%	21.7%	18.9%	22.7%	23.1%	21.3%	25.0%
% Miles at or below Cond State 4	6.0%	4.7%	10.9%	9.1%	9.5%	10.2%	9.5%	8.4%
% Miles at or below Cond State 3	0.3%	0.8%	4.8%	2.9%	2.8%	3.2%	3.0%	1.8%
% Miles at or below Cond State 2	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%
% Miles at or below Cond State 1	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%
% Miles at or below Cond State 0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%

Goal: less than 20% of total miles of collector streets at or below 5

# State of Our Local Streets

Local	2001	2010	2014	2015	2016	2017	2018	2019
% Miles at or below Cond State 10	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
% Miles at or below Cond State 9	93.9%	98.6%	98.8%	98.1%	98.1%	96.6%	94.6%	96.1%
% Miles at or below Cond State 8	88.3%	92.6%	93.6%	94.9%	95.2%	94.3%	92.2%	92.9%
% Miles at or below Cond State 7	68.2%	56.0%	70.8%	64.1%	61.6%	61.8%	53.2%	78.5%
% Miles at or below Cond State 6	61.8%	40.7%	39.0%	41.8%	43.7%	45.9%	44.3%	44.3%
% Miles at or below Cond State 5	34.9%	28.5%	27.9%	27.6%	28.4%	27.8%	25.9%	25.7%
% Miles at or below Cond State 4	11.6%	6.7%	16.2%	17.5%	18.8%	18.2%	16.2%	15.4%
% Miles at or below Cond State 3	2.4%	0.6%	2.8%	2.7%	2.9%	3.5%	3.1%	2.9%
% Miles at or below Cond State 2	0.9%	0.0%	0.1%	0.1%	0.2%	0.2%	0.2%	0.1%
% Miles at or below Cond State 1	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% Miles at or below Cond State 0	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Goal: less than 30% of total miles of local streets  
at or below 5

# Curb & Gutter

- ⇒ What is the purpose of curb & gutter?
  - Drainage
  - Define parking
  - Keep terrace intact

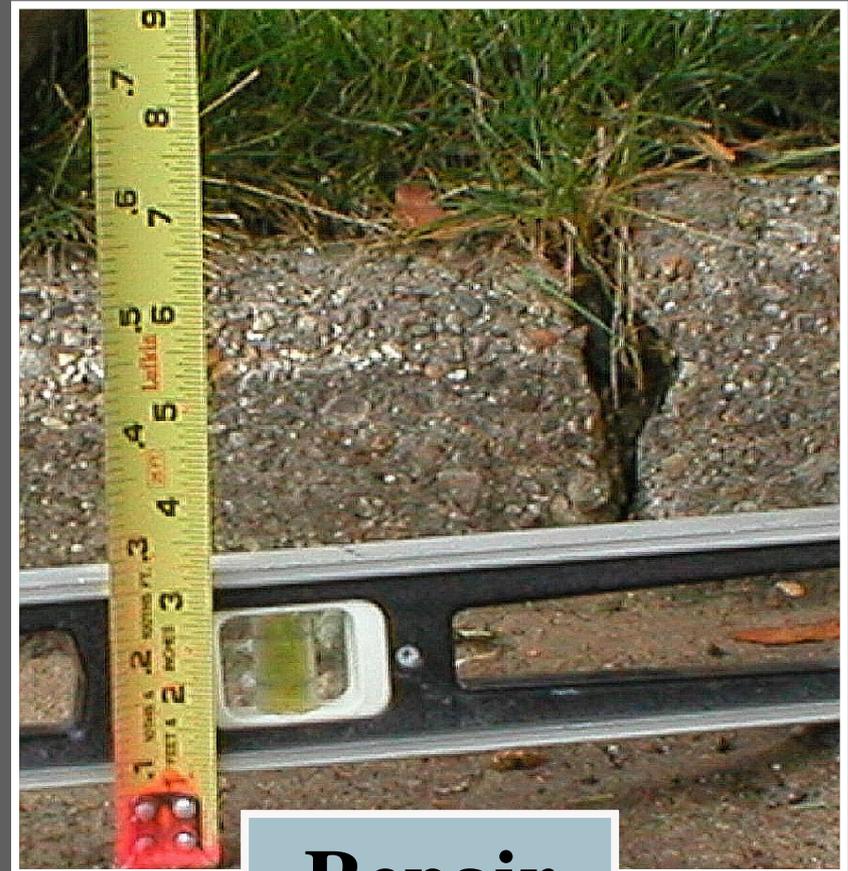
# Selection Criteria

- ⇒ Look for 6 different types of problems in c&g:
- ⇒ Vertical Offset
- ⇒ Horizontal Offset
- ⇒ Water Ponding
- ⇒ Curb Head
- ⇒ Tipped Curb
- ⇒ Pitted Concrete

# Vertical Offset



**Repair**



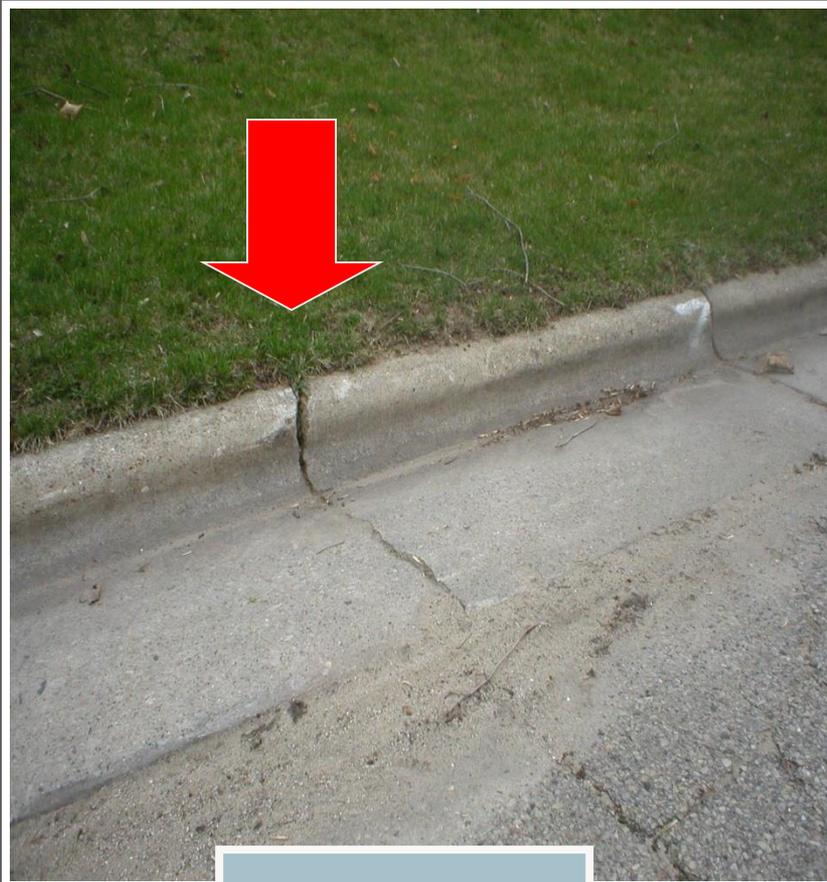
**Repair**

# Horizontal Offset



**Repair**

# Cracks



**Repair**



**Leave**

# Water Ponding



**Repair**

# Curb Head



**Repair**

# Tipped Curb



**Repair**

# Pitted Concrete

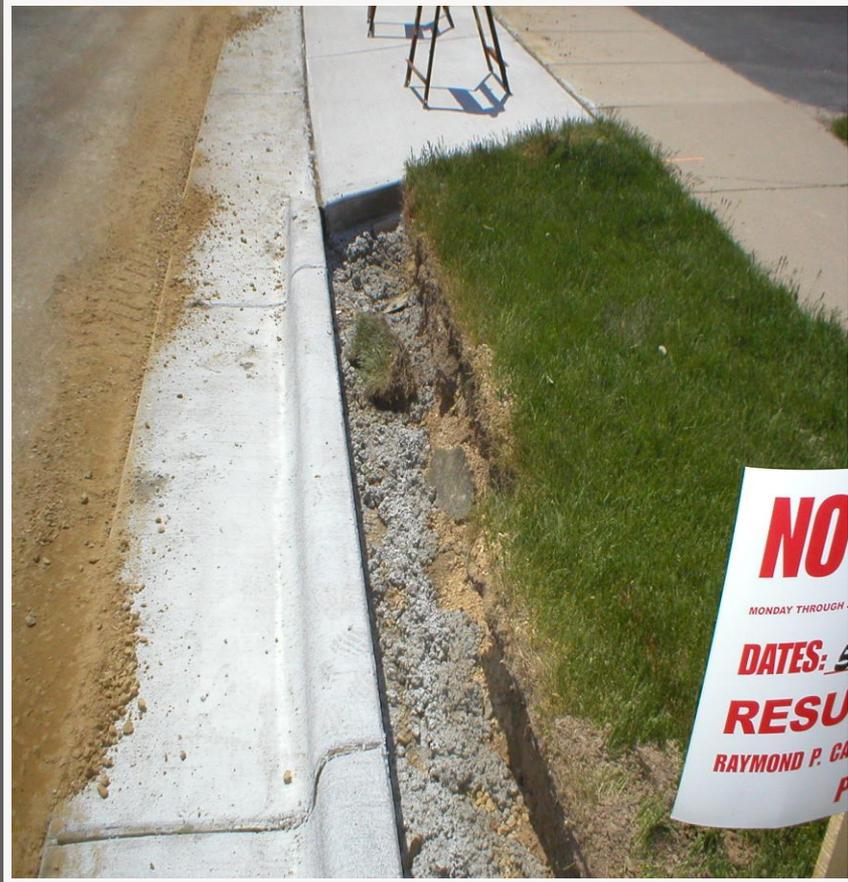


**Leave**

# Assessments

- ⇒ Cost split with property owner and City
- ⇒ Curb & Gutter work associated with storm sewer inlets is not assessed to property owners
- ⇒ Public hearings at Board of Public Works and Common Council meetings
- ⇒ Pay assessment in full the year invoiced or pay installments over an eight year period

# CURB & GUTTER CONSTRUCTION



⇒ HAND PLACED C&G VS. MACHINE PLACED C&G

# STORM SEWER CONSTRUCTION



- REBUILDING INLETS
- INSTALLING NEW INLET AND PIPE

# UTILITY CASTING ADJUSTMENTS



➔ ADJUSTING CASTING

➔ ADJUSTING WATER VALVE BOX

# DRIVE APRON CONSTRUCTION



- ⇒ PARTIAL REPLACEMENT OF DRIVE APRON
- ⇒ FULL REPLACEMENT OF DRIVE APRON IN PHASES

# PAVEMENT PULVERIZING



- ➔ ASPHALT AND GRAVEL BASE ARE PULVERIZED
- ➔ NEW BASE IS GRADED AND COMPACTED
- ➔ NEW BASE IS TEST ROLLED AND UNDERCUT
- ➔ NEW BASE IS FINISHED ROLLED TO FINAL GRADE

# PAVEMENT PULVERIZING



- ➔ ROLLED AND COMPACTED BASE
- ➔ UNDERCUT SOFT AREA AFTER TEST ROLL

# PAVEMENT MILLING



➔ MILLING OPERATION

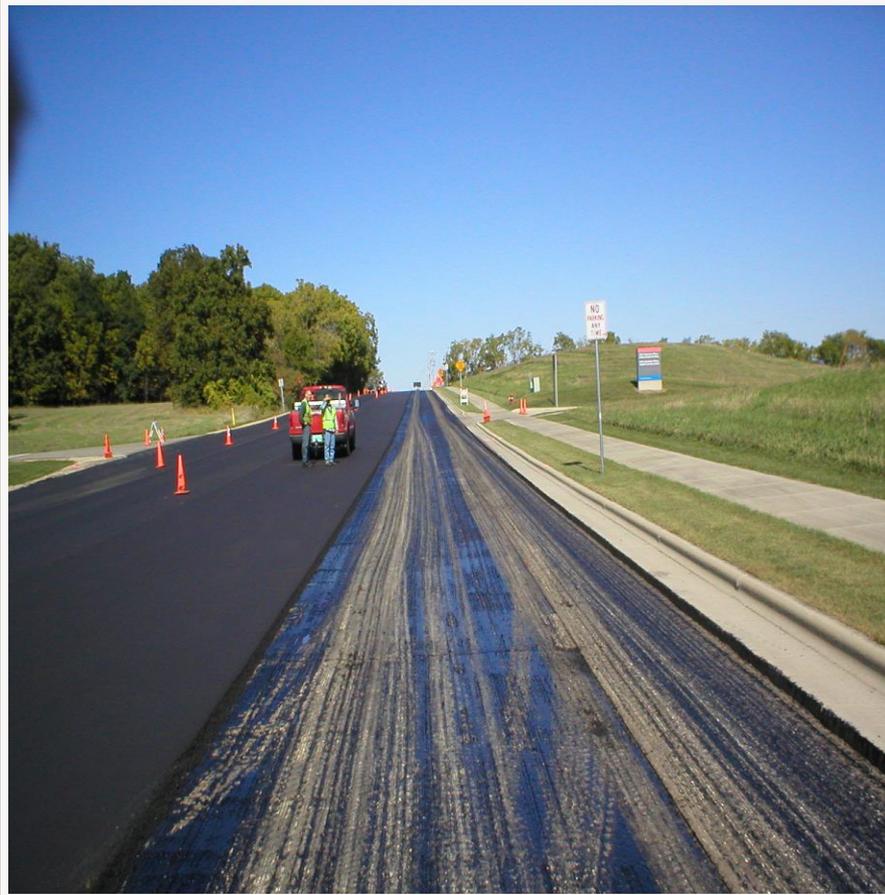
➔ SOFT AREA THAT WILL BE UNDERCUT OR BASE PATCHED

# PAVEMENT MILLING - UNDERCUT



- ➔ TEST ROLL PAVEMENT
- ➔ EXCAVATE SOFT AREAS
- ➔ PLACE BREAKER RUN STONE OR ASPHALT

# ASPHALT PAVING



- ➡ TACK COAT APPLIED TO LOWER ASPHALT LAYER
- ➡ PAVING FINAL LIFT OF ASPHALT

# ASPHALT PAVING & RESTORATION



➡ ASPHALT PAVING

➡ RESTORATION OF TERRACES AFTER C&G INSTALLED

# City Engineering Division RESURFACING PROGRAM

- PUBLIC INFORMATION MEETINGS: Dec 10 & 11.
- TONIGHT IS THE APPROVAL OF 3 CONTRACTS
  - CURB AND GUTTER REPLACEMENT WITH RESURFACING
  - PULVERIZING & PAVING WITH RESURFACING
  - PATCHING
- PUBLIC HEARING ON ASSESSMENTS BPW JANUARY 8, 2020
- COMMON COUNCIL HEARING JANUARY 21, 2020
- SURFACE PAVING NEW PLAT PHASES: CITY COST SHARE FOR IMPROVEMENTS TO EXISTING STREETS
- PAVEMENT PATCHING/MILLING/OVERLAY CITYWIDE