



City of Palm Bay City Council Meeting Road Bond Paving Update

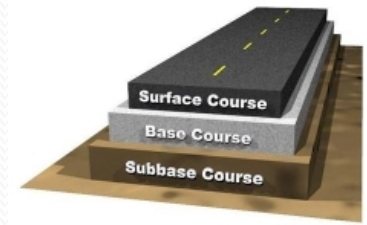
January 18, 2024

Road Bond Paving Background

- ❑ Road Bond Paving \$150 million in November 2018
- ❑ Streets assessed based on 2017 PCI (Pavement Condition Index)
- ❑ Approximately 791 miles of local & collector streets
- ❑ Five-phases with eight years of construction approved by Council on February 7, 2019
- ❑ Program divided City roads into four quadrants
- ❑ Road Bond covers only road paving and no pipes
- ❑ Pavement treatment types per Street Units and Phases
- ❑ Pavement treatment types or “tool-box” included:
 - ❑ Reconstruction
 - ❑ Full Depth Reclamation (FDR)
 - ❑ Milling & Paving
 - ❑ Thin Lift Overlays
 - ❑ Micro Surfacing
- ❑ In-house engineering & inspections

Road Paving Treatments

- **Reconstruction**: Existing roadway pavement and base is completely removed and then reconstructed by compacting subbase, placing 8"-10" of compacted base rock and then 1.5" to 2" of asphalt pavement.
- **Deep Lift Asphalt**: Existing roadway pavement and base is removed by milling and then typical 4" to 5" of asphalt pavement to create a thick asphalt structural section.
- **Full Depth Reclamation (FDR)**: Existing roadway pavement and base is reclaimed by pulverizing the materials, then adding cement and emulsion to the recycled material to create a new 8" base with then 1.5" to 2" asphalt pavement.
- **Milling and Paving**: Existing asphalt pavement surface is milled and then new 1.5" to 2" of asphalt pavement overlay.
- **Thin Lift Overlay**: Existing pavement surface is repaired of cracks, ruts and potholes with 1.0" to 1.5" thick overlay of asphalt on top of the existing pavement.
- **Micro Surfacing**: Asphalt slurry emulsion which adds 3/8" layer to the asphalt surface with good PCI rating to add another 3-5 years.



Pavement Life 20 Yrs.

PAVEMENT PRESERVATION

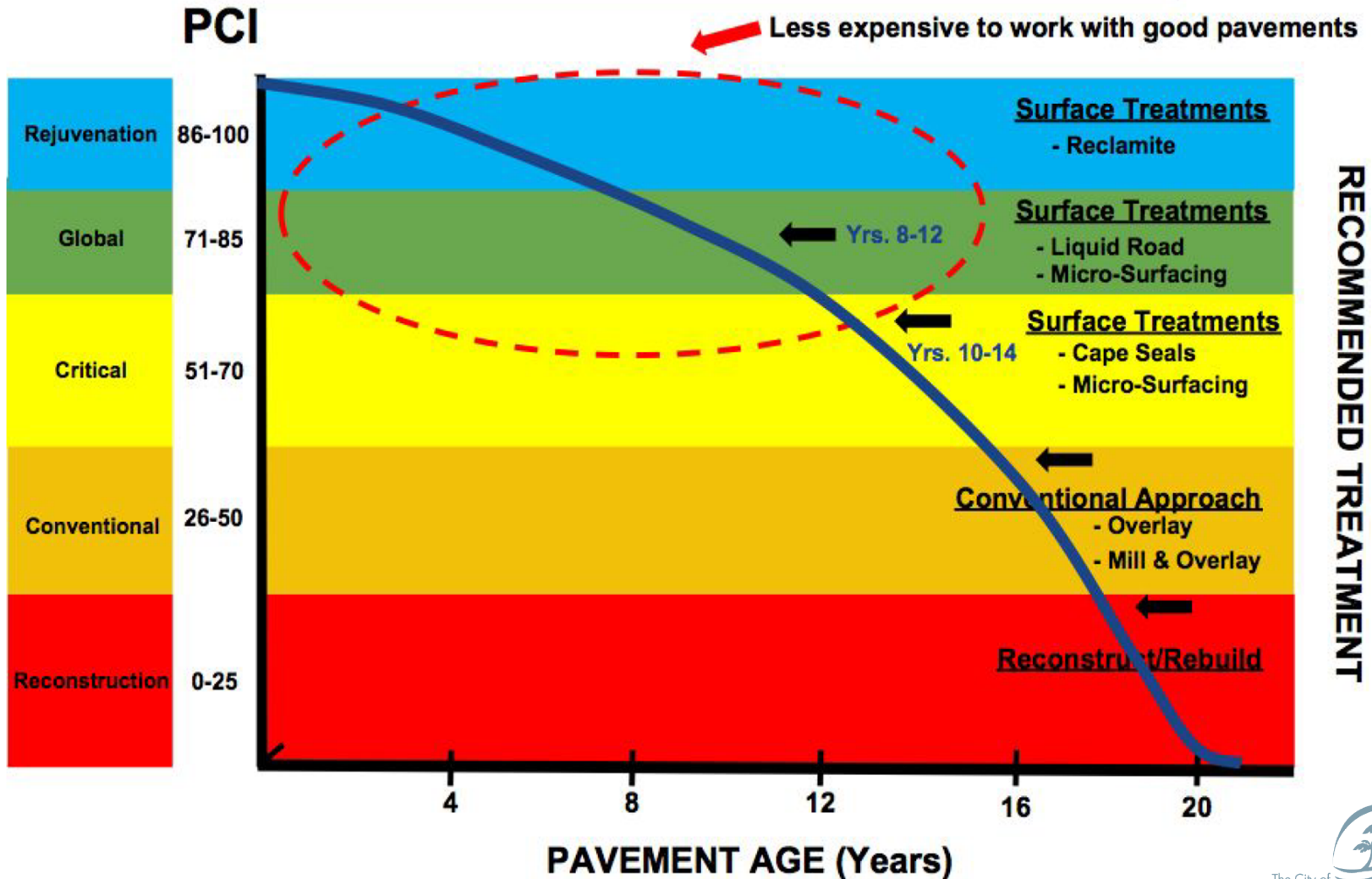


Figure 2-1 Pavement Preservation

Road Maintenance Program

Year 1 (Phase 1) Year 2 (Phase 2) Year 3 (Phase 3) Year 4 (Phase 4) Year 5 (Phase 5) Total = 791 miles	Year 2020	Year 2021	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027	Year 2028	Year 2029	Year 2030	Year 2031	Year 2032	Year 2033	Year 2034	Year 2035	Year 2036	Year 2037	Year 2038	Year 2039
Rejuvenation Twice 5 years	\$1.1	\$1.1		\$2.4	\$2.4	(2 nd) \$1.5	\$4.2	(2 nd) \$2.2	(2 nd) \$3.3 \$4.3	(2 nd) \$4.2	\$2.4	(2 nd) \$4.2	(2 nd) \$6.6							36mi \$0.4
Preservation Micro-Surfacing 5 Years												143mi \$6.7	190mi \$8.9	140mi \$6.5	138mi \$6.5	180mi \$8.5				
Thin Overlay 25% Streets																	36mi \$5.9	48mi \$7.9	35mi \$5.7	35mi \$5.7
Mill and Pave 25% Streets																				
Full Depth Reclamation 2% Streets					2mi \$0.5		4mi \$0.8			10mi \$1.1										
Full Reconstruction 2% Streets																				16mi \$4.2
Total Per Year	\$1.1	\$1.1		\$2.4	\$3.0	\$1.5	\$5.0	\$2.2	\$7.6	\$5.3	\$2.4	\$10.9	\$15.5	\$6.5	\$6.5	\$8.5	\$5.9	\$7.9	\$5.7	\$10.3
Average 10 Years	\$2.8										\$8.0									
Average 20 years	\$5.4 million																			

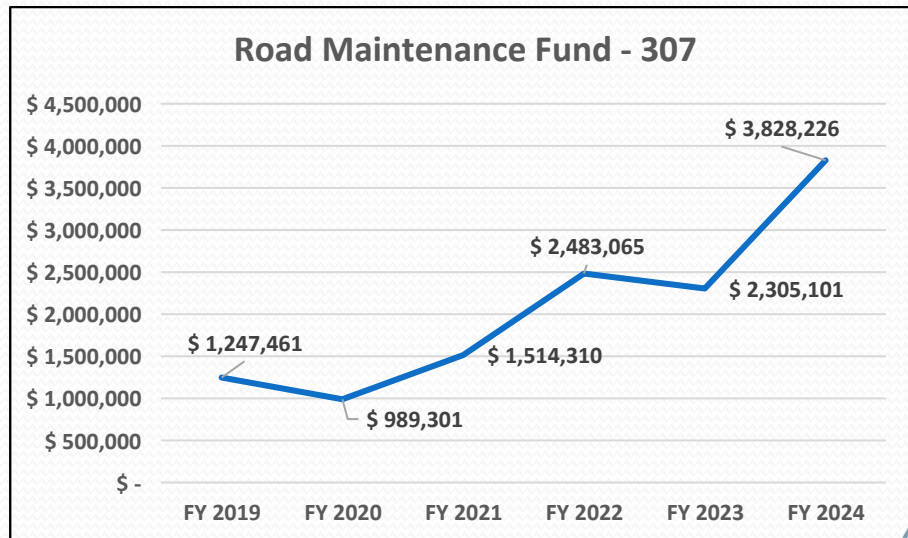
Road Maintenance Fund – Funding Policy

- ☐ Approved by City Council 8-18-2022
 - ☐ Established an annual minimum funding plan of \$4 Million (FY 2024) that would increase to \$6 Million (FY 2029 or sooner). Prioritized sources:
 - ☐ 1 – Annual Budget Transfer from General Fund
 - ☐ 2 – Unexpended GF dollars at end of FY
 - ☐ 3 – BCRA unexpended balance transfer
 - ☐ 4 – End of BCRA – full transfer of revenue into roads
 - ☐ 5 – Sale of City-owned properties
- *BCRA – Bayfront Community Redevelopment Agency

Road Maintenance Fund (RMF) – Funding

□ Funding Into to RMF:

- FY 2024: \$3,828,226 (\$2.75 Million GF + \$1 Million BCRA)
- FY 2023: \$2,305,101 (\$1 Million GF + \$1 Million BCRA)
- **FY 2022: \$2,483,065 (\$750K GF + \$1.3 Million BCRA)**
- FY 2021: \$1,514,310
- FY 2020: \$989,301
- FY 2019: \$1,247,461





FY 2024 Road Maintenance Rejuvenation

	Phase	Streets/Units	SY
1	2	Unit 24	250,544
2	2	Unit 25	388,314
3	2	Palm Bay Colony and Kirby	85,659
4	2	Driskell Heights/Florida/Farview	66,832
5	2	Unit 48 and Emerson	333,200
6	2	Emerson – Jupiter to Amado	32,500
7	2	Unit 20	233,325
8	2	Port Malabar - Babcock to Palm Bay	28,700
		Total SY	1,419,074

- ☐ Estimate \$1,888,788
- ☐ Tentative start date Jan 2024
- ☐ Completion within 90 days

Premium Micro Surfacing Demo Test

- ☐ Completed Demo Micro of three streets in Unit 40
 - ☐ Agora Circle
 - ☐ Mercury Avenue
 - ☐ Thor Avenue
- ☐ Based on field inspections, the 6% micro is performing better than previous experience with micro surfacing.
- ☐ Initial application shows minimal signs of deficiency
- ☐ Monitoring the micro surfacing application for 30 days
- ☐ Post inspection of the surface for any tire divots
- ☐ Monitored by City Staff with Contractor for 30 days, all went as planned, will continue with the plan to use micro surfacing in Units 26, 38, 39 and 40.

Unit 40 Premium Micro Surfacing



Port Malabar FDR Operation



Port Malabar Road Paved and Striped



Unit 49 Paving Madden

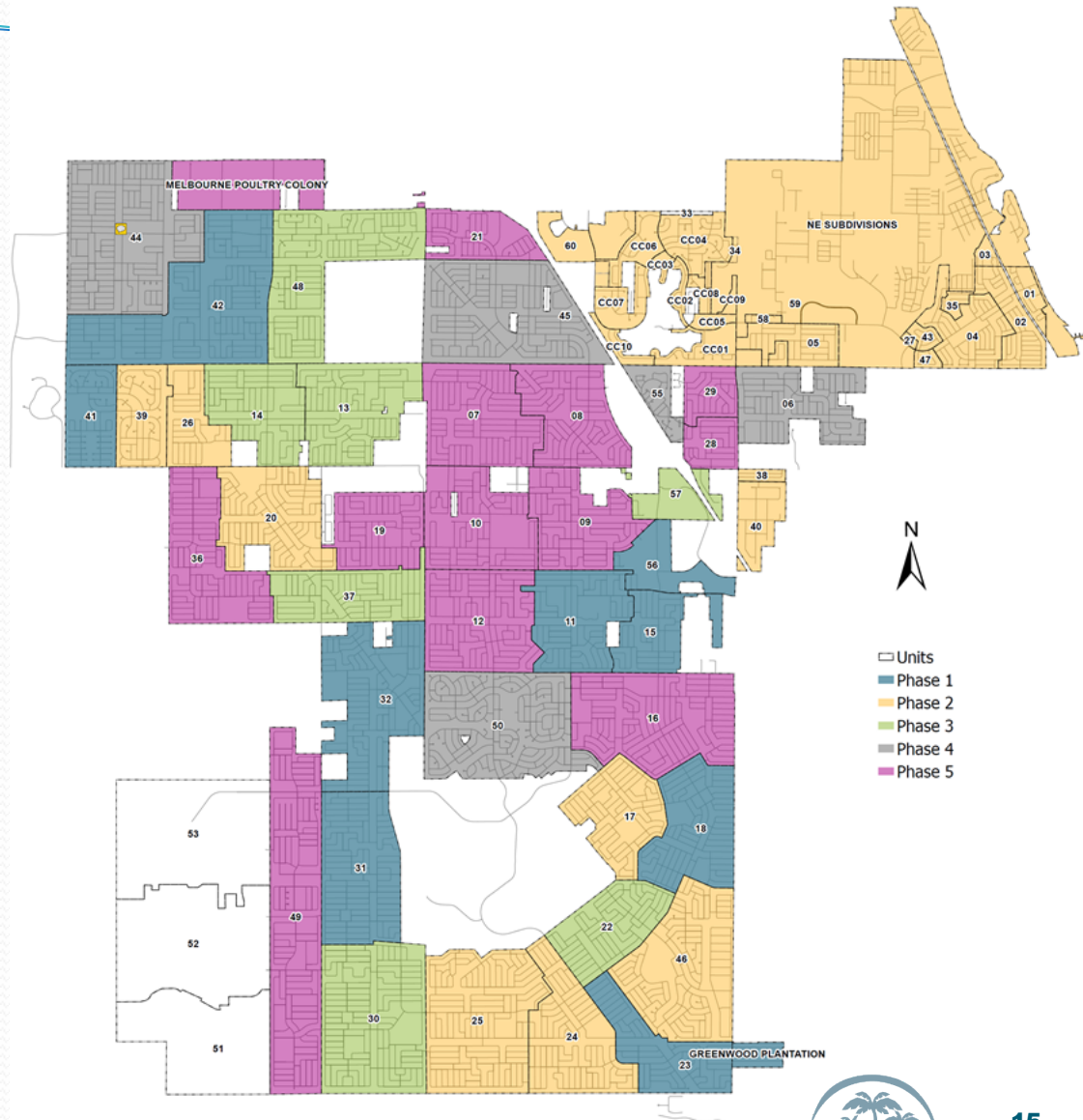


Unit 14 - Americana



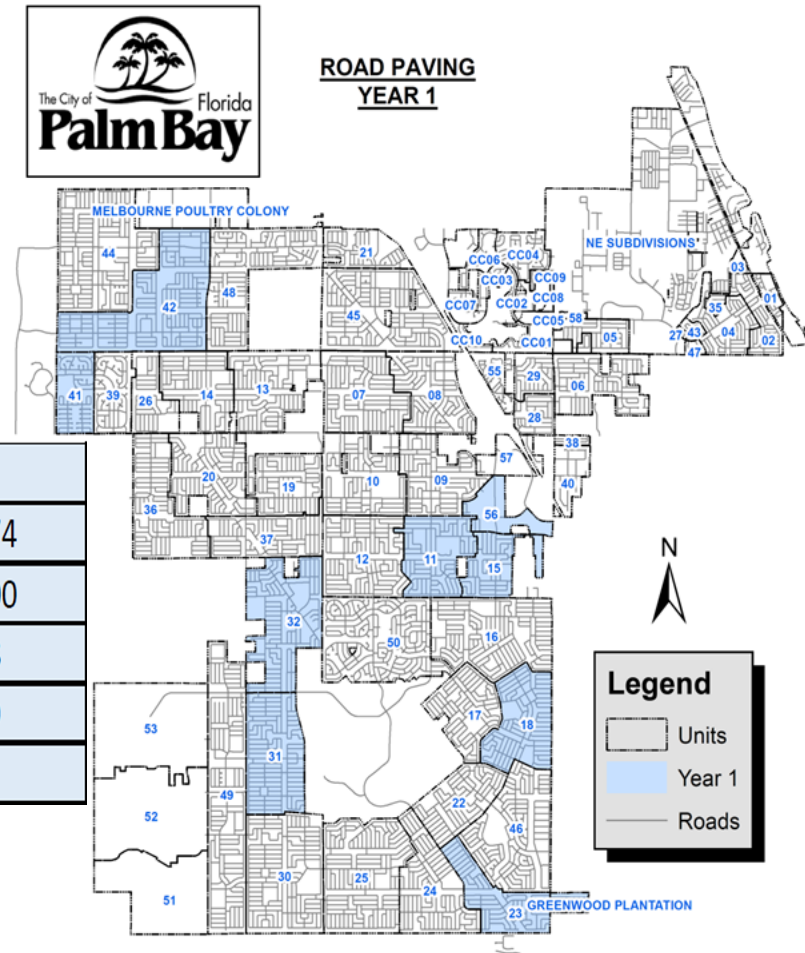
Five Phases – 8 Years Road Bond Paving

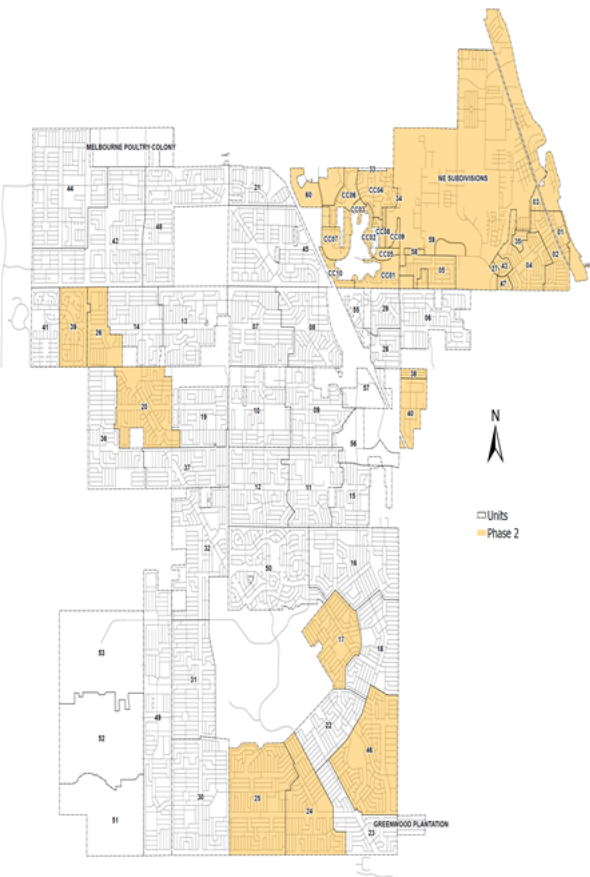
	Road Miles
Phase 1	142.82
Phase 2	214.15
Phase 3	116.54
Phase 4	101.14
Phase 5	216.35
Total Miles	791



Phase 1 Road Paving Units 100% Completed

Phase 1 Road Bond Paving	Phase	Miles	Cost
Unit 11, 15, 18, 23 & 56	1	56.63	\$10,020,961.74
Unit 31 & 32	1	41.47	\$10,269,206.00
Unit 41 and Eldron	1	11.21	\$3,074,558.88
Unit 42 and Garvey Road	1	33.51	\$7,727,462.09
Total Units		142.82	\$31,092,189



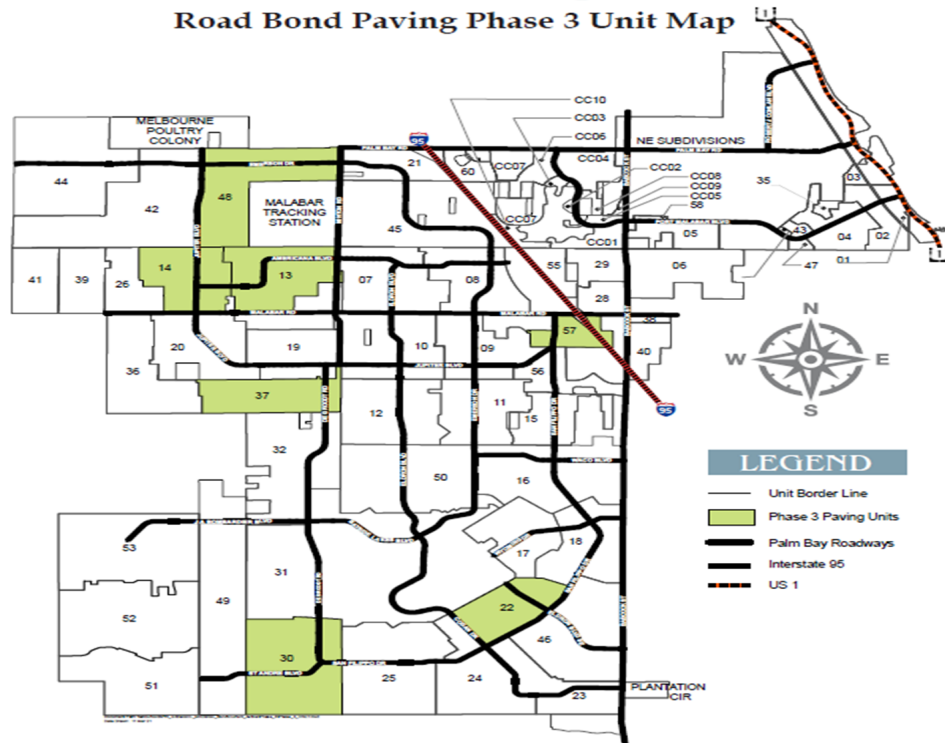


Phase 2

Phase 2 Road Bond Paving	Phase	Approximate Miles	Cost
Pt Malabar Rd from Palm Bay to Babcock St	2	1.66	\$996,582
Emerson Dr from Minton Rd to C-1	2	2.55	\$1,118,119
Unit 17	2	13.16	\$1,464,995
Unit 46	2	23.96	\$2,062,216
Unit 5	2	6.49	\$926,775
Units 1,2,3,4,27,35,43,47	2	24.13	\$3,617,733
Units 24 & 25	2	45.37	\$7,861,369
Palm Bay Colony & Kirby Industrial	2	6.09	\$1,138,314
Driskell Heights/Florida/Farview	2	4.75	\$1,104,798
Unit 20	2	16.57	\$2,666,361
Emerson from Amador Ave to Jupiter Blvd	2	1.96	\$1,166,361
Knecht Rd & Pt Malabar from Babcock to US1	2	9.49	\$4,431,232
Northeast Area Misc	2	17.68	\$6,179,384
Country Club 1-10	2	20.9	\$11,129,738
Units 26,38,39,40 (micro surfacing)	2	19.39	\$1,839,542
Total Units		214.15	\$47,703,319

Phase 3

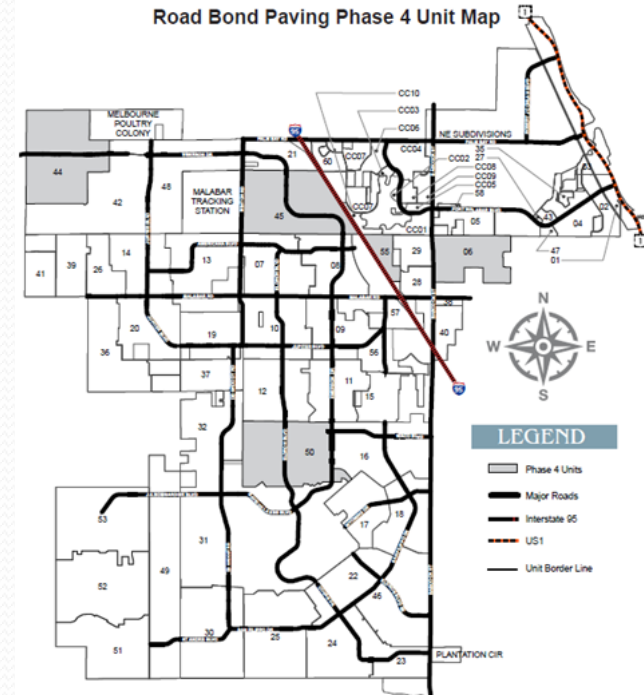
The City of  Florida
Palm Bay
 Public Works Department
 Road Bond Paving Phase 3 Unit Map



Phase 3 Road Bond Paving	Phase	Approximate Miles	Cost
Units 48 & Emerson from C-1 to Fairhaven	3	22.97	\$5,074,200
Unit 30	3	30.10	\$11,923,113
Units 13, 14, Madden and Osmosis	3	34.16	\$10,950,728
Units 22, 37, 57, Waco and Minton	3	29.31	Est. \$12,992,038
Total Units		116.54	\$40,940,079

Phase 4

The City of Florida
Palm Bay
Public Works Department
Road Bond Paving Phase 4 Unit Map



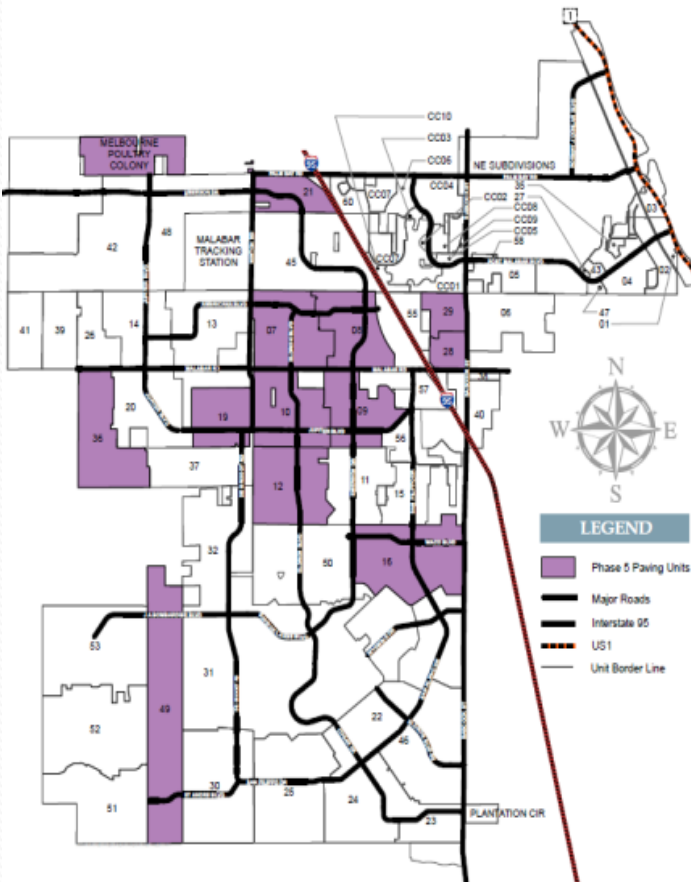
Phase 4 Road Bond Paving	Phase	Approximate Miles	Cost
Unit 6	4	14.12	Est. \$3,422,657
Unit 44	4	29.96	Est. \$10,085,930
Unit 45	4	23.62	Est. \$8,617,501
Unit 50, Emerson and Bayside	4	30.61	Est. \$9,398,586
Unit 55	4	2.83	Est. \$948,024
Total Units		101.14	Est. \$32,472,698

Phase 5



Public Works Department

Road Bond Paving Phase 5 Unit Map



Phase 5 Road Bond Paving	Phase	Approximate Miles	Cost
Unit 7	5	19.6	\$5,568,393
Unit 8	5	16.7	\$4,700,203
Unit 9	5	15.1	\$4,520,578
Unit 10	5	16.3	\$4,580,453
Unit 12	5	21.6	\$6,167,146
Unit 16	5	26.6	\$7,484,400
Unit 19	5	14.6	\$3,891,888
Unit 21	5	8.9	\$2,365,070
Unit 28	5	5.9	\$1,629,936
Unit 29	5	5.8	\$1,596,672
Unit 36	5	19.9	\$5,658,206
Malabar Road	5	5.95	\$6,818,918
Jupiter from Garvey to San Filippo	5	4.47	\$1,142,718
Melbourne Poultry Colony	5	5.13	\$1,030,352
Unit 49	5	29.8	\$11,021,472
Total Units		216.35	\$68,176,405

Summary – All Phases

Phase	Miles	Cost Actual/Est*
Phase 1	142.82	31,092,189+
Phase 2	214.15	47,703,319^
Phase 3	116.54	40,940,079^
Phase 4	101.14	32,472,698*
Phase 5	216.35	68,176,405*
Totals	791	220,384,690^

+Based on actual costs

*Based on estimates

^Based on a combination of actual costs and estimates

Pavement Repair Based on 2019

	Type of Repair	Life	\$/mile@20 ft	\$/SY
1	Reconstruction	>20 yrs	\$548,000	\$46.7
2	Full Depth Reclamation	15-10 yrs	\$420,000	\$35.8
3	Milling and Paving	15-20 yrs	\$208,000	\$18.6
4	Thin Lift Overlay	10-15 yrs	\$170,000	\$14.4
5	Micro Surfacing	10 yrs	\$44,000	\$4.00
6	Rejuvenation	5-7 yrs	\$11,733	\$1.00

Pavement Repair Based on 2023

	Type of Repair	Life	\$/mile@20 ft	\$/SY
1	Reconstruction	>20 yrs	\$510,000	\$43.5
2	Full Depth Reclamation	15-10 yrs	\$375,500	\$32.0
3	Milling and Paving	15-20 yrs	\$283,800	\$24.2
4	Thin Lift Overlay	10-15 yrs	\$207,900	\$17.7
5	Micro Surfacing	10 yrs	\$82,100	\$7.00
6	Rejuvenation	3-7 yrs	\$14,700	\$1.25

% Change

-6.9%

-10.6%

+30.1%

+22.9%

+75.0%

+25.0%

Road Bond Paving – Financial Update

Completed 404 miles or 51% of the total 791 miles of Road Bond Paving.

GO Road Bond (3 draws):	\$159,265,282
Interest Earned as of Nov 2023:	\$ 4,585,845
Total Funding:	\$163,851,127

Projects completed or under contract:	\$ 94,016,742
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Estimated future projects (2023 costs)	<u>+\$126,367,948</u>
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Total Est. Expenditures	\$220,384,690
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Estimated shortfall	(\$ 56,533,563)
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Road Bond Paving – Financial Update

Reasons for the Overage and Impediments:

- ☐ COVID
- ☐ Inflation
- ☐ Increase fuel cost
- ☐ Higher cost for asphalt/binder
- ☐ Higher cost for various other materials
- ☐ Limited availability of aggregate
- ☐ Limited availability of cement
- ☐ Shortage of skilled workers
- ☐ Increase in cost of trucking

Based on information gathered from Stakeholder Meetings hosted by Procurement

Future Specification Change Considerations

Options	Issues	Valid
<input type="checkbox"/> 6% polymer micro	Significantly lower cost New product Under testing and not FDOT approved	Yes
<input type="checkbox"/> 1" thin lift asphalt	Lower asphalt unit cost Limited structural strength with 1" thick Not yet FDOT approved	No
<input type="checkbox"/> Reduced PG asphalt <i>*PG: Polymer Grade</i>	Slight cost reduction in unit cost Limited saving in cost per ton of asphalt	No
<input type="checkbox"/> Not paving all streets	Streets will need to be paved eventually	TBD
<input type="checkbox"/> No PG for asphalt	Extreme cost savings Other local agencies have no PG PG is for traffic volume and speed PG is per FDOT on freeways	Yes

Other Considerations – Closing the Gap

- ☐ Estimating the need for another \$50+/- Million to complete original plan.
- ☐ This will involve some sort of multi-year financing approach.
- ☐ Need to identify annual source of recurring revenue

- ☐ Voter consideration/additional bond issuance
 - ☐ Unknown potential for voter approval; 2024 ballot?
- ☐ New General Fund revenues – limited
 - ☐ 3% Cap limits availability of new and recurring revenue dedication; plus already dedicating increasing funding to Road Maintenance Fund

Other Considerations – Closing the Gap

- Seeking alternative funding sources
 - Local Option Gas Tax – Brevard County Commission supermajority required to approve an increase or place on referendum; Currently 6 cents; authorized to levy another 5 cents (potential for +/- \$2-3 million to City)
 - Charter County and Regional Transportation System Discretionary Sales Surtax – Brevard County Commission simple majority required to place on a referendum; 0.25% up to 1%. Range of \$22.9 to \$91.9 million in new revenue annually shared between Brevard County and municipalities – must be used for roads and bridges

Other Considerations – Closing the Gap

- In FY 23, the City received \$4.4 Million in Local Option Gas Tax funds (5 cents)
 - Included in General Fund general revenue
 - Identified strategy to transfer these funds over several FY budget cycles into the Road Maintenance Fund, reducing General Fund reliance on it.
 - Potential to then use this revenue for annual debt repayment of an additional +/- \$50 Million bond to complete road program.
 - Based on GO Road Bond debt service payments, estimating funding for a \$3-\$3.5 Million annual payment is needed.



Any Questions