

# California Waste Tire Market Report: 2022

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Draft Findings  
January 19, 2024



# Outline

1. The Bottom Line
2. Market Trends by Category
3. Recycling Outlook

# The 2022 Bottom Line:

## Recycling Continues Amid Changing Conditions



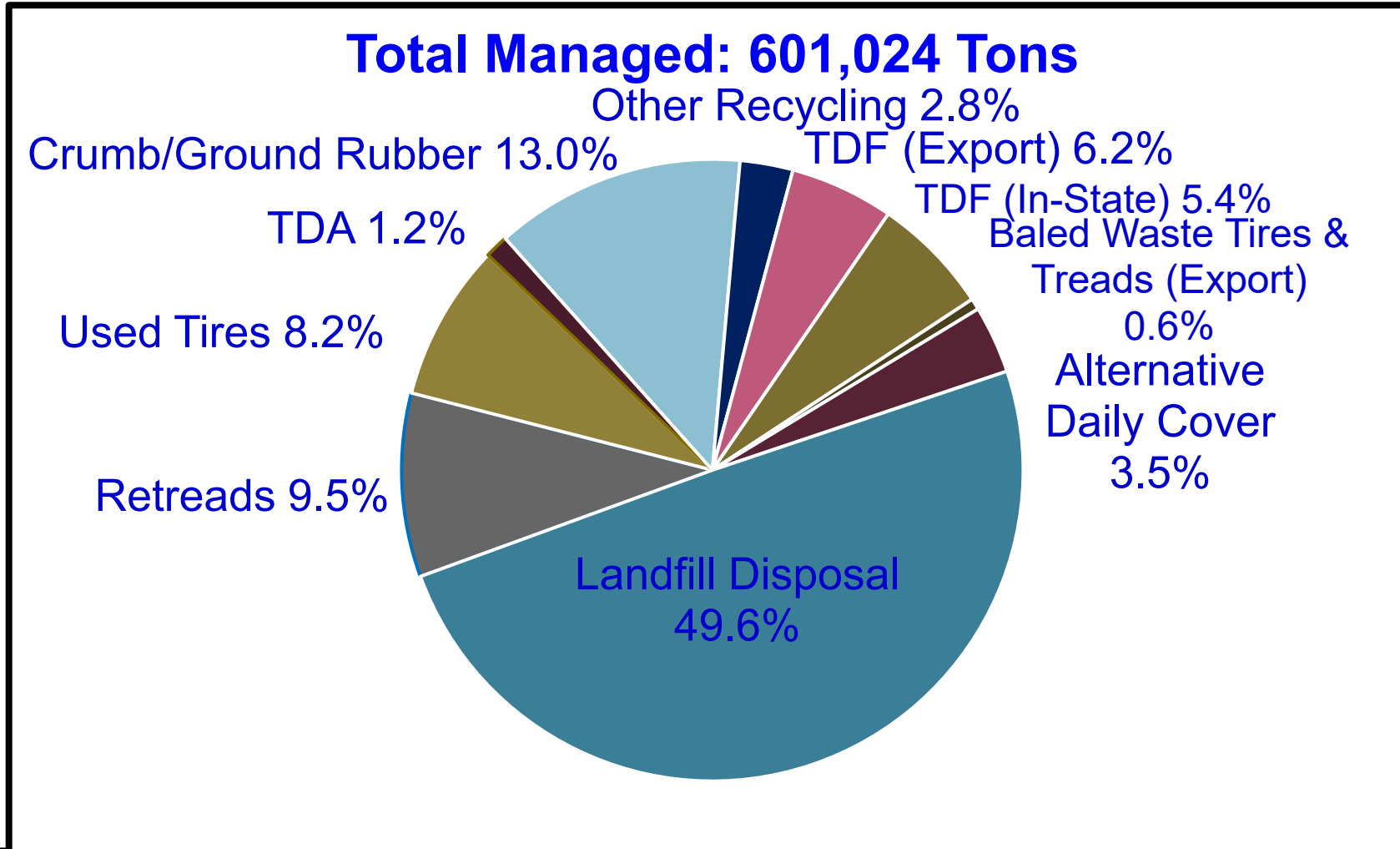
# The 2022 Summary

- Increased total amount of managed tires from previous year
- Recycling rate unchanged (although increased tonnage)
- Slightly decreased diversion rate

## Challenges during 2022

- Transitioning out of the Covid Period – changed consumer patterns, rebound \$
- Economic resetting from Covid support, rising inflation, perceived 2023 recession risk
- Low unemployment, increased wages → staffing challenges
- Export/Import challenges with changes & costs, backed up ports

# 2022 California Waste Tire Flows



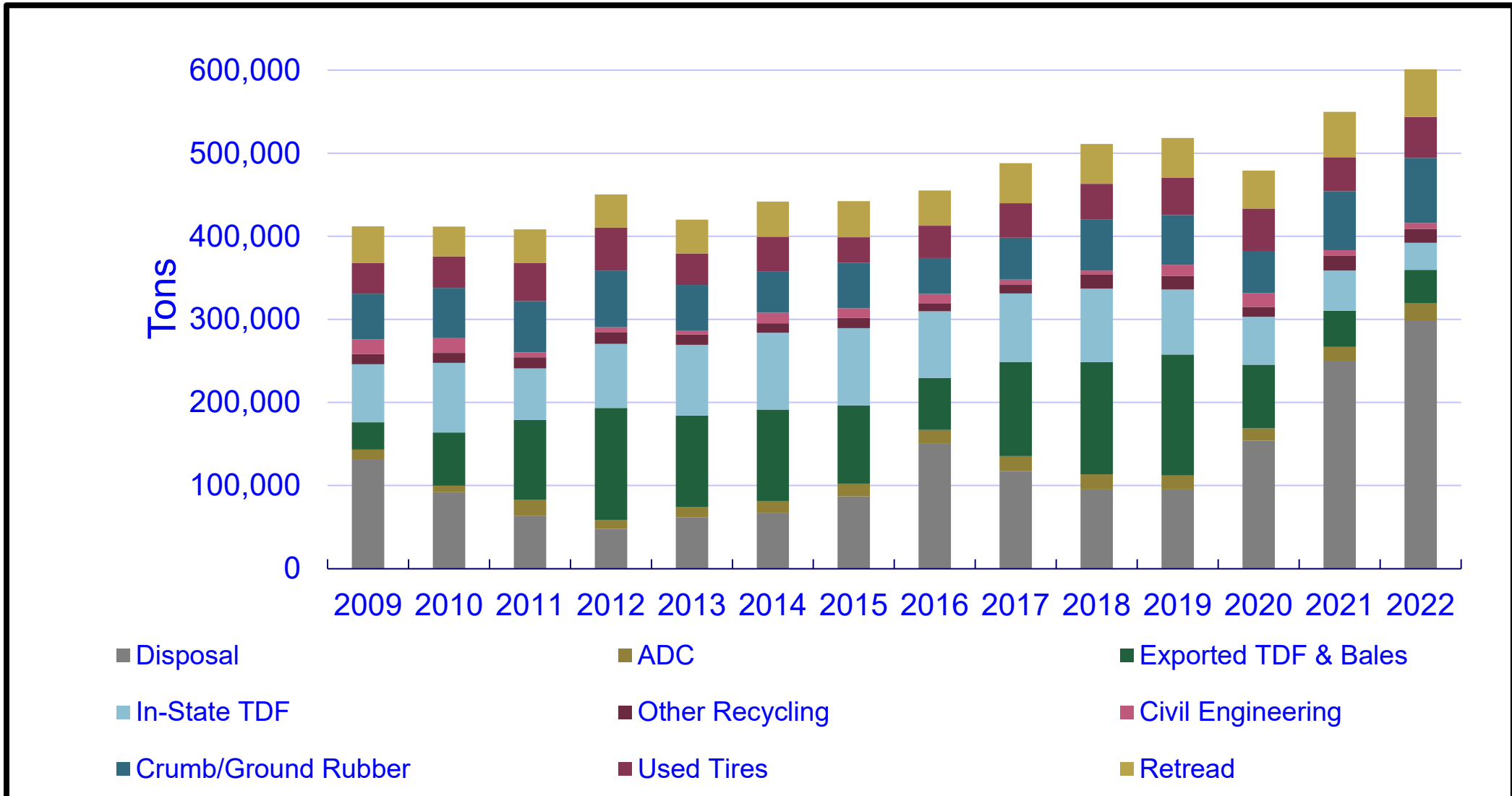
## Recycling

34.7% of Total  
208,777 Tons

## “Disposal Related”

15.7% of Total  
94,163 Tons  
*Includes TDF and ADC*

# 14-Year Trend by Market Segment

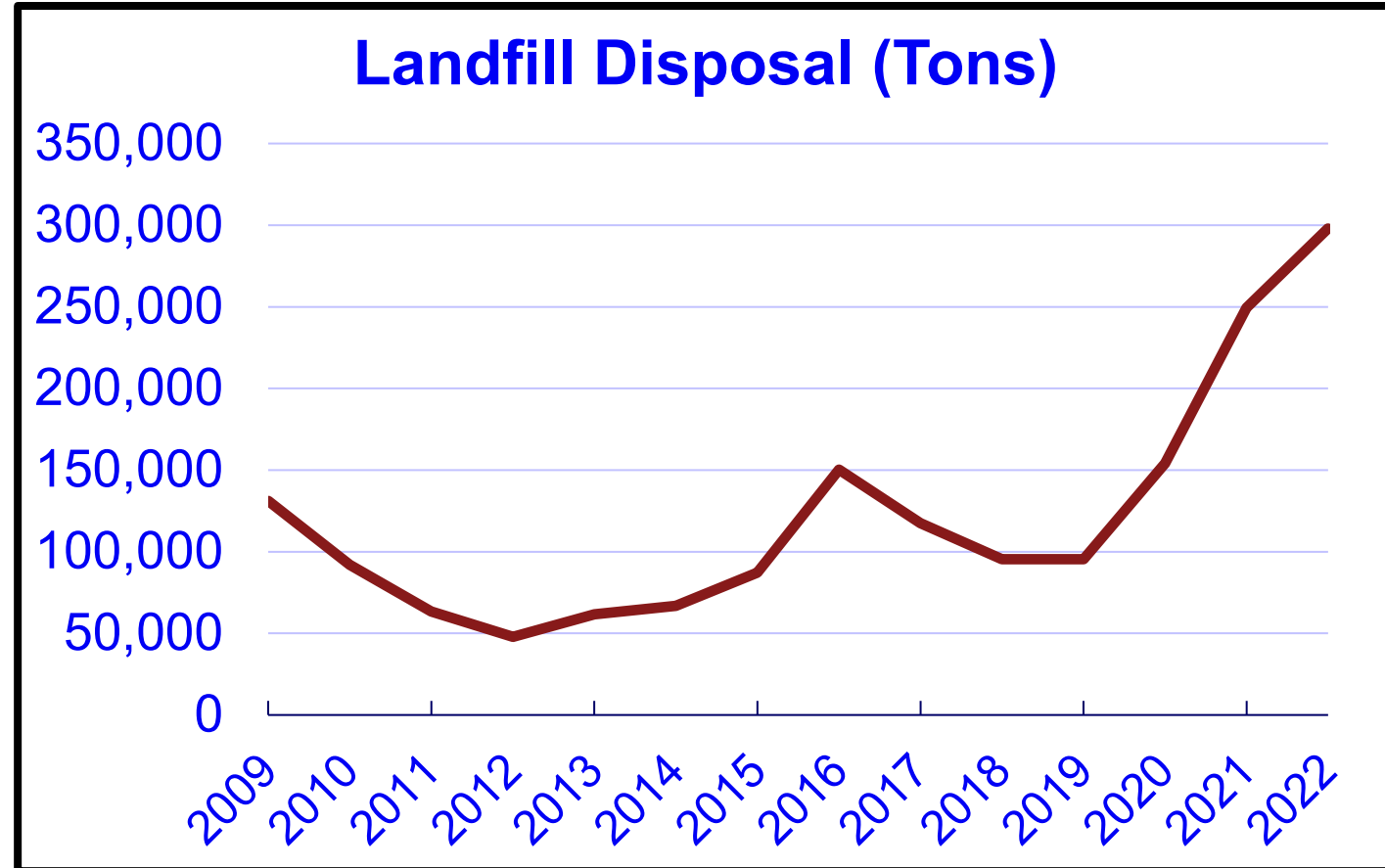


## 2. Market Trends by Category

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# Landfill Disposal

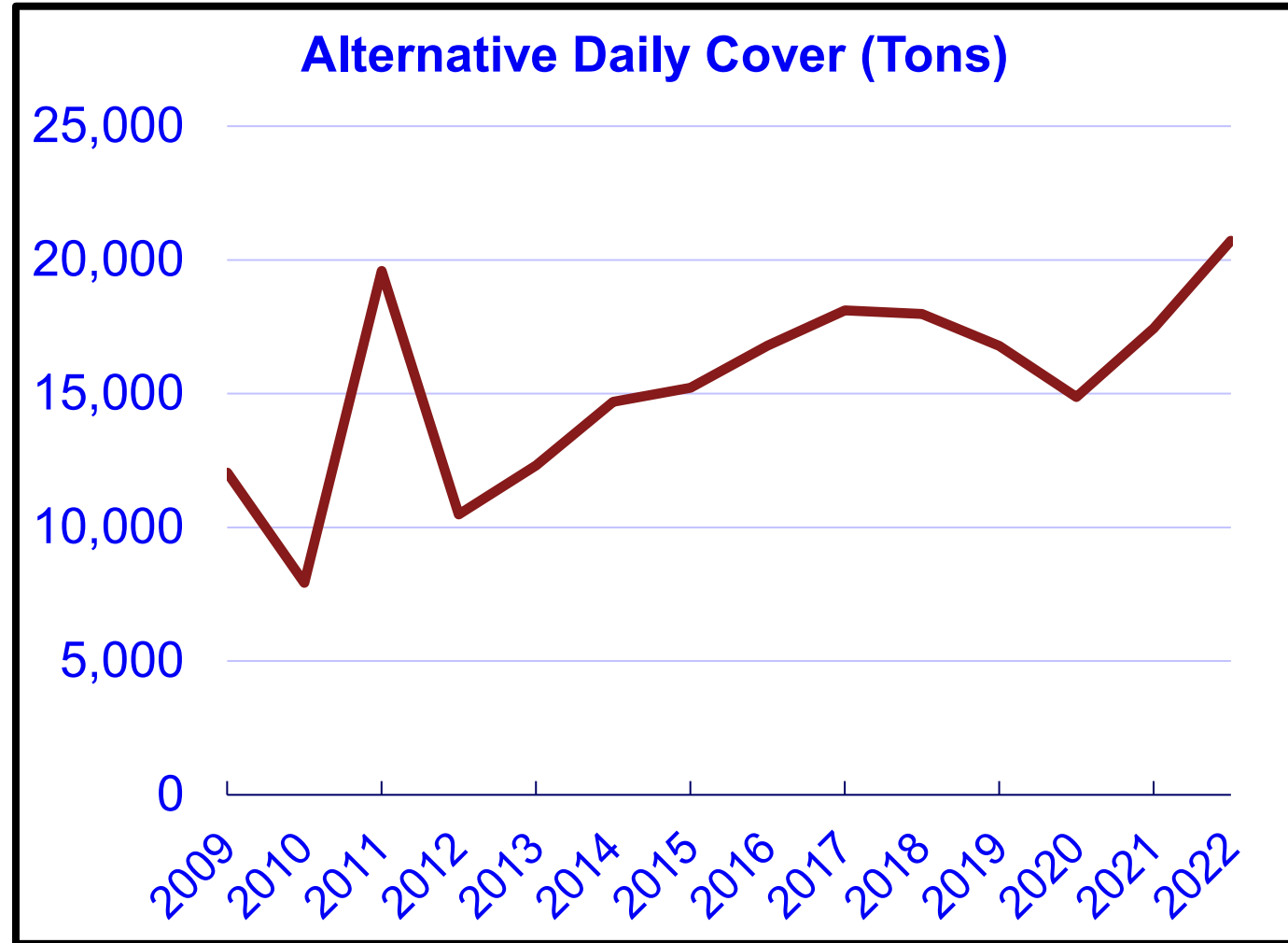
- 298,084 Tons, 49.6% of Total
- Up 16.3% over 2021
- 20+ Year Record High
- Shift from In-State TDF
- Exports backed up
- 2023 Trend: Staying High





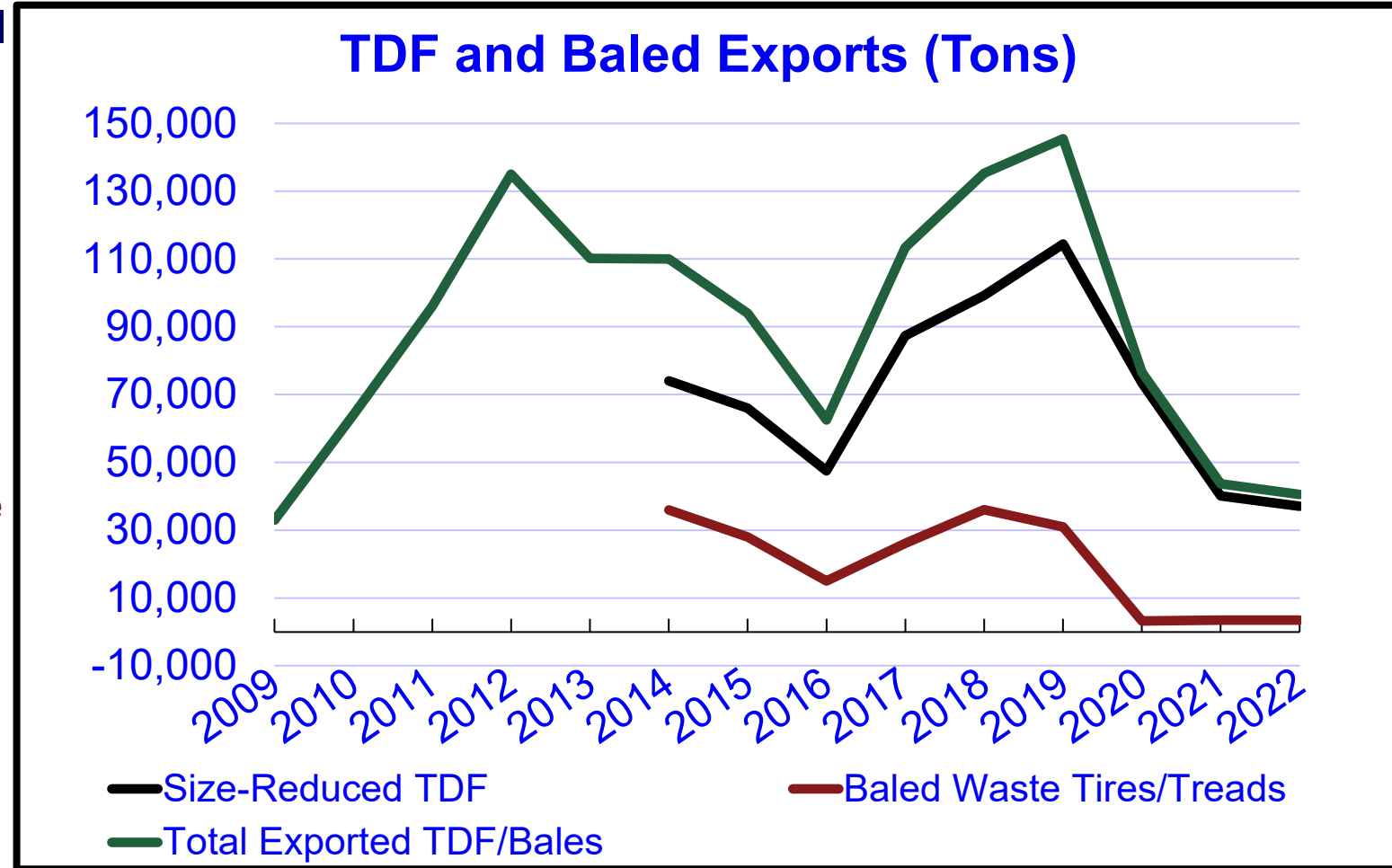
# Landfill Alternative Daily Cover

- 21,169 Tons, 3.5% of Total
- Up 18% at 2 Landfills
- 2023 Trend: Steady relationship to LF operations



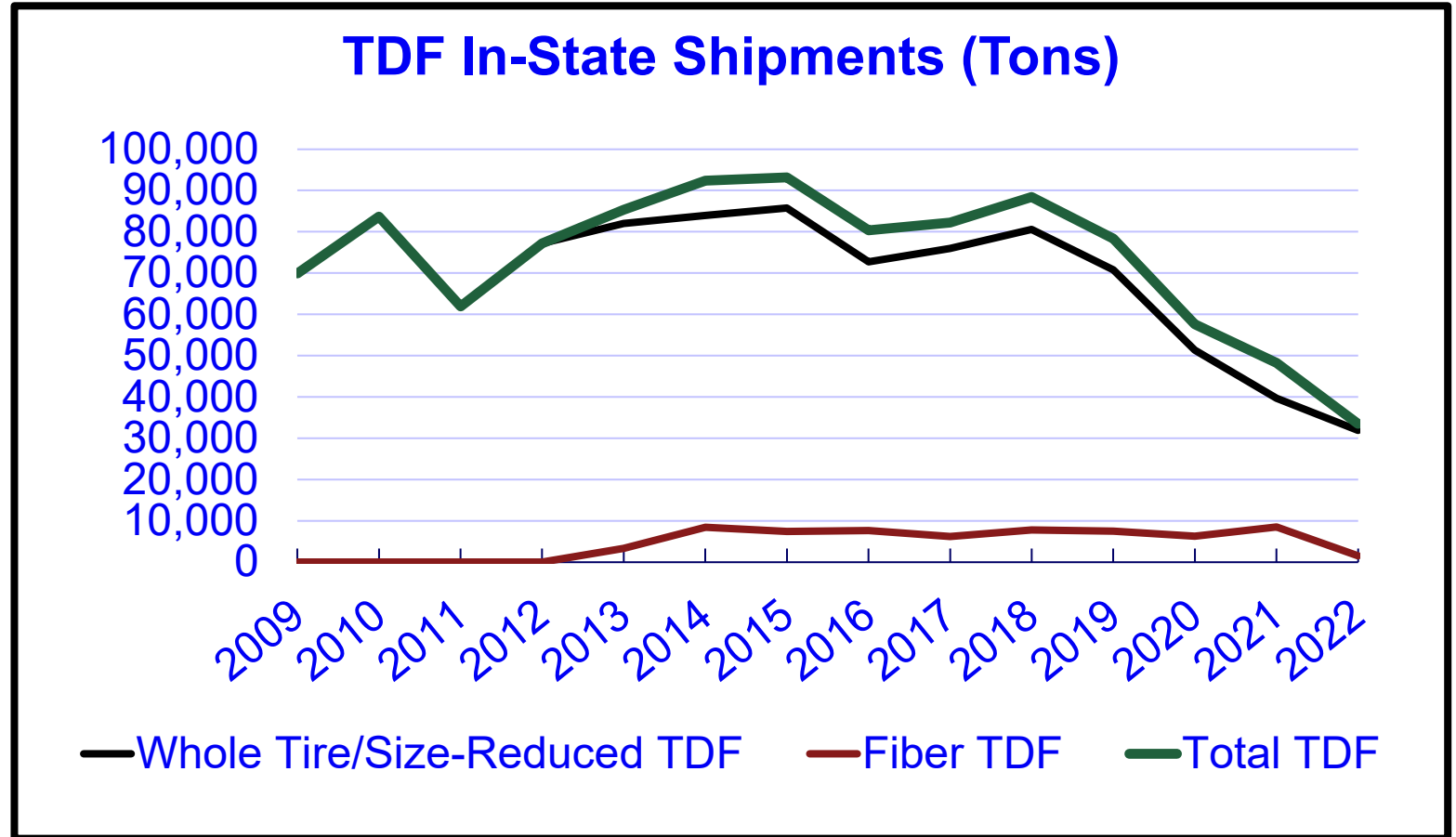
# Exported TDF and Baled Waste Tires / Treads

- 40,537 Tons, 6.7% of Total
- TDF decreased 8.4%
- Markets overseas still restricted in 2022
- Used in cement kilns, power plants, pulp and paper and chemical plants in select countries
- Waste Tire Bale Exports essentially the same since 2020
- Poor Economics in 2022
- 2023 Trend: Export demand growing, improved economics



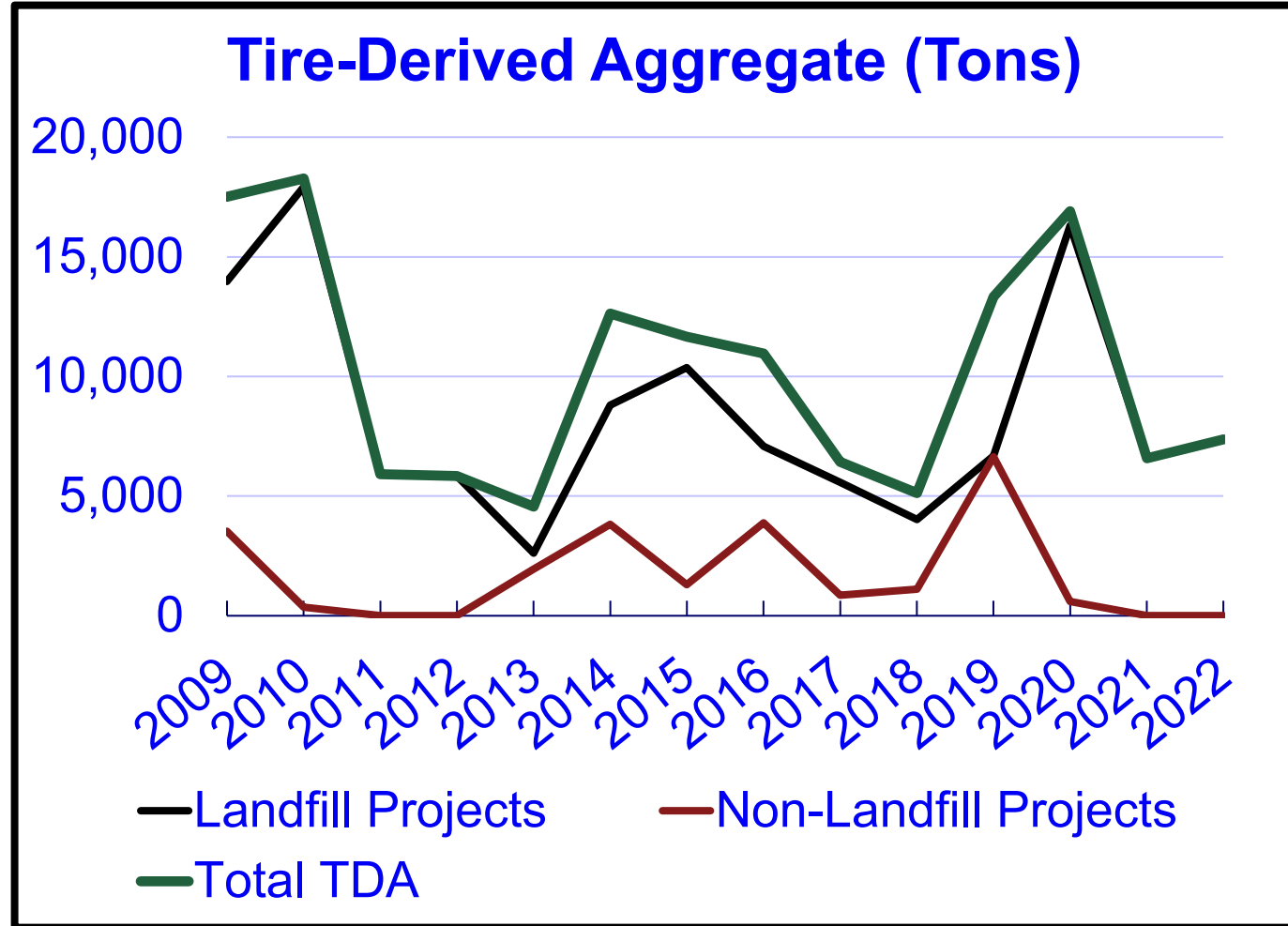
# In-State TDF

- 32,457 Tons, 5.4% of Total
- Down 32.7%
- Includes 1,542 Tons Fiber
- Changing Cement Kiln Fuel specifications
- 2023 Trend: Continued decrease



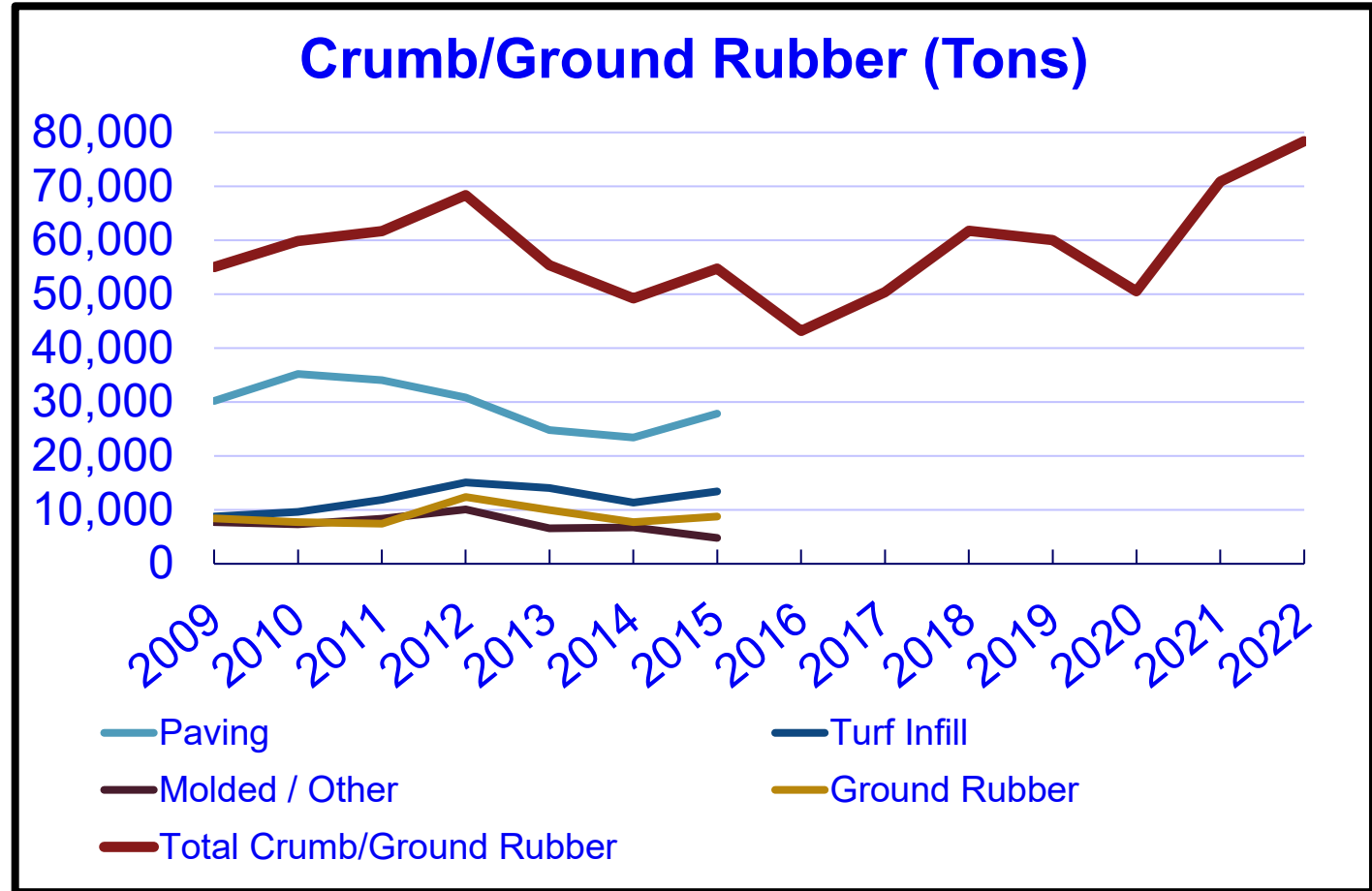
# Tire-Derived Aggregate

- 7,371 Tons, 1.2% of Total
- Increased 10.8%
- All Landfill projects in 2022
- LA Metro grant projects, ~6,700 Tons scheduled for 2023
- Environmental concerns have stunted use
- Grant Solicitation Published, \$750K/Year Allocated



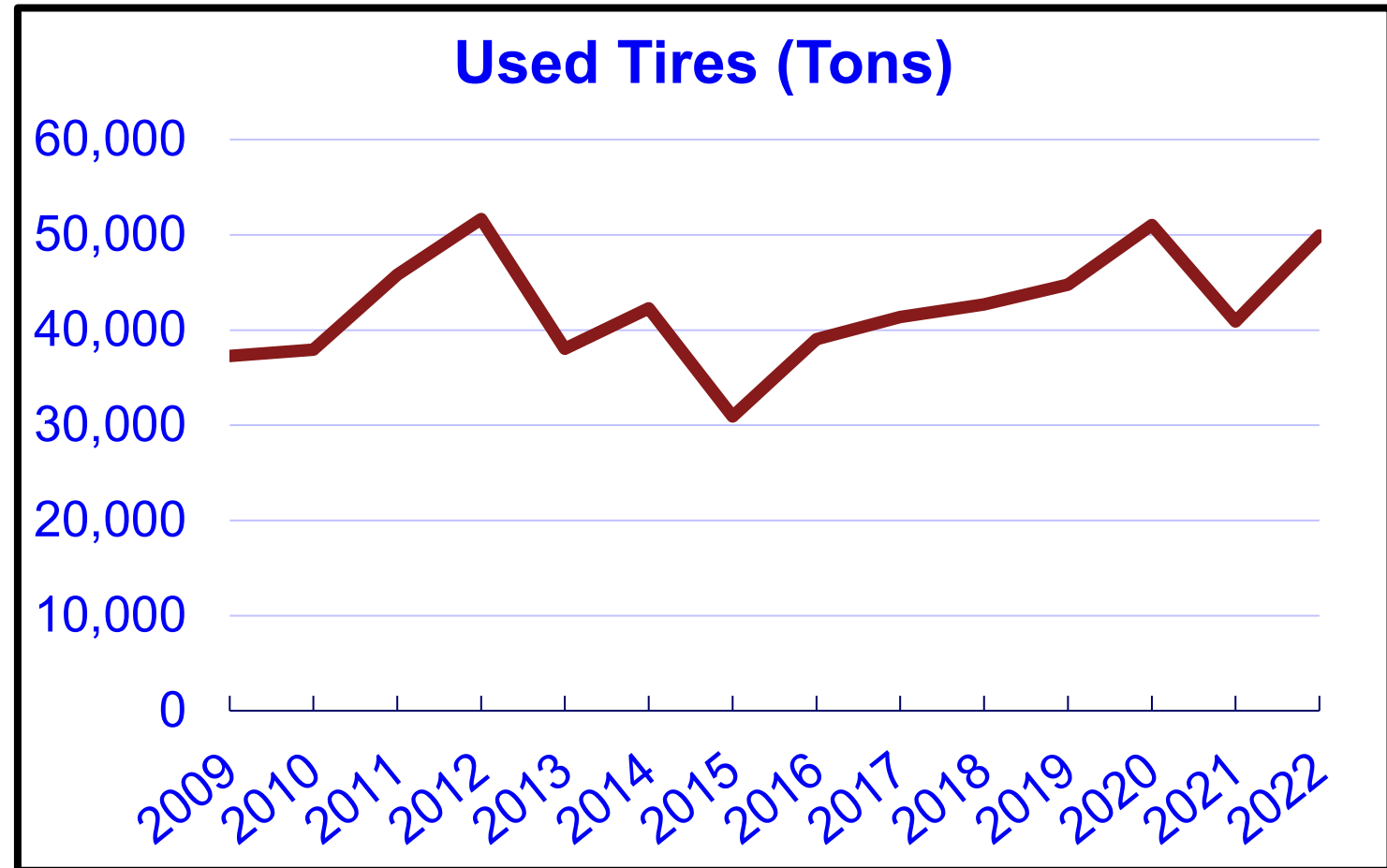
# Crumb / Ground Rubber

- 78,341 Tons, 13% of Total
- 9.5% increase
- Paving: 36-46 K Tons
- Molded/Other: 13.5-17 K Tons
- Turf Infill: 6-9 K Tons
- Ground Rubber: 2.5-4.5 K Tons
- 2023 Trend: Stable, market changes on the horizon



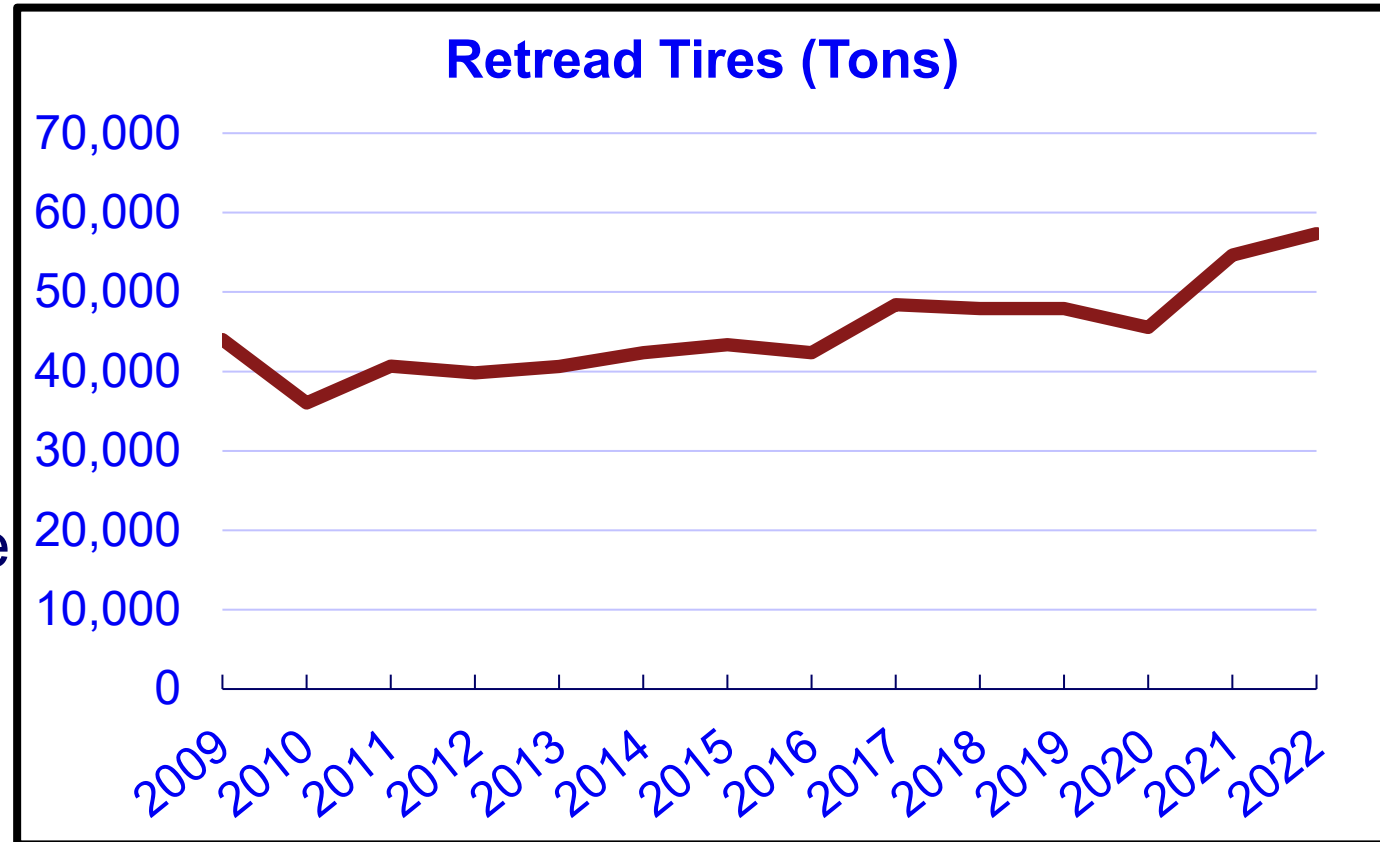
# Used Tires

- 49,112 Tons
- 8.2% of Total
- Used tires sold in CA tire shops
- Also exported  
(Mainly to Mexico, Capped by Quota)
- High inflation may improve market



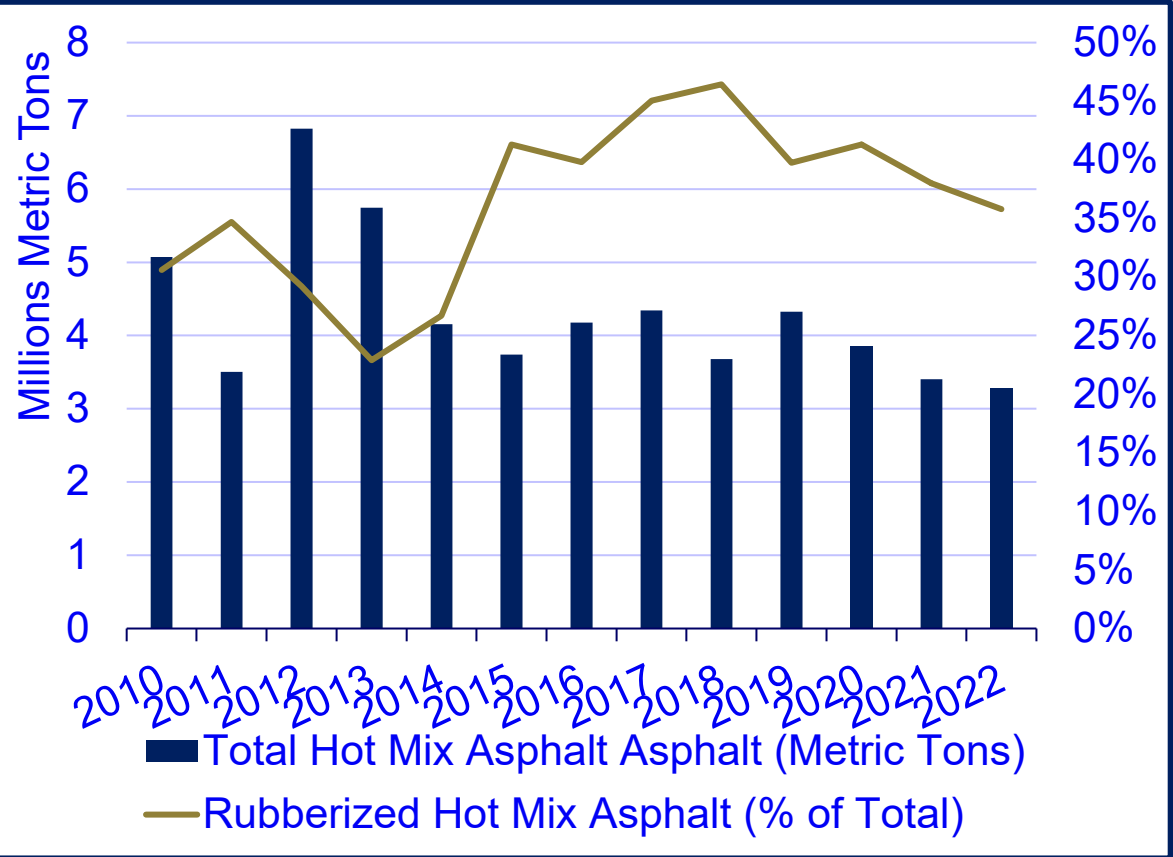
# Retreads

- 57,366 Tons, 9.5% of Total
- Up 5%+ from 2021
- Reduced amount of imported new tires increases the % of retreads
- Competing with inexpensive import tires
- 2023 Trend: Staying high based on consumer value

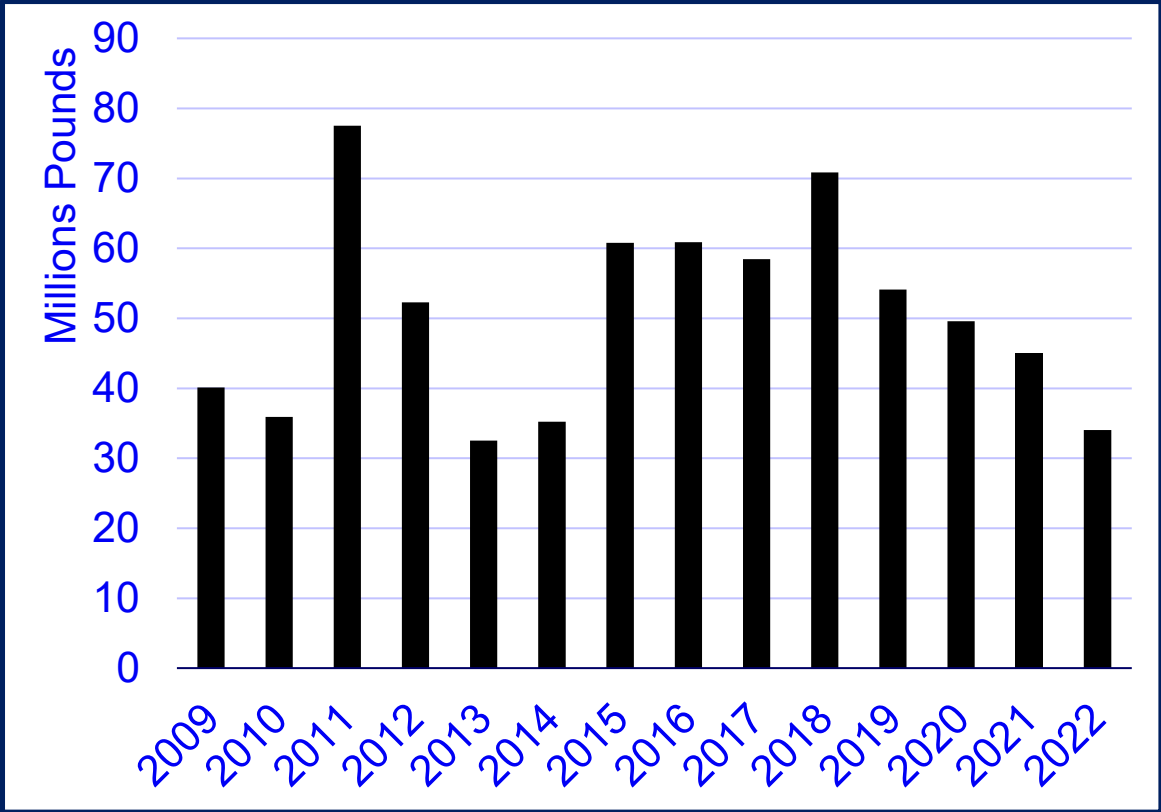


# Caltrans Rubberized Paving

**Total Asphalt Placed and Percent Rubberized Hot Mix Asphalt**



**Caltrans Crumb Rubber Used**



Average: 50.5 Million Pounds per Year



Source: Caltrans Annual Crumb Rubber Reports  
(2022 Data are Caltrans draft estimates)



# 2022 CalRecycle Support

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## Rubberized Pavement Grant Program (TRP)

- TRP15 (FY 2022/23): awarded 2022, 25 grantees estimate 8.7 M pounds
- Historic Average: 8.8 M pounds per year

## Tire Incentive Program (TIP)

- TIP10 (FY 2022/23): awarded 2022, 7 grantees estimate 15.6 M pounds
- TIP participants reported purchases of 22.1 M pounds in 2022
- Historic average: 12.9 M pounds per year

## Tire Derived Aggregate (TDA) Grant Program

- TDA19 & TDA20 (FY 2022/23): awarded 2022, 2 grantees estimate 17.2 M pounds
- Historic Average: 10 M pounds per year

## Tire Derived Product (TDP) Grant Program

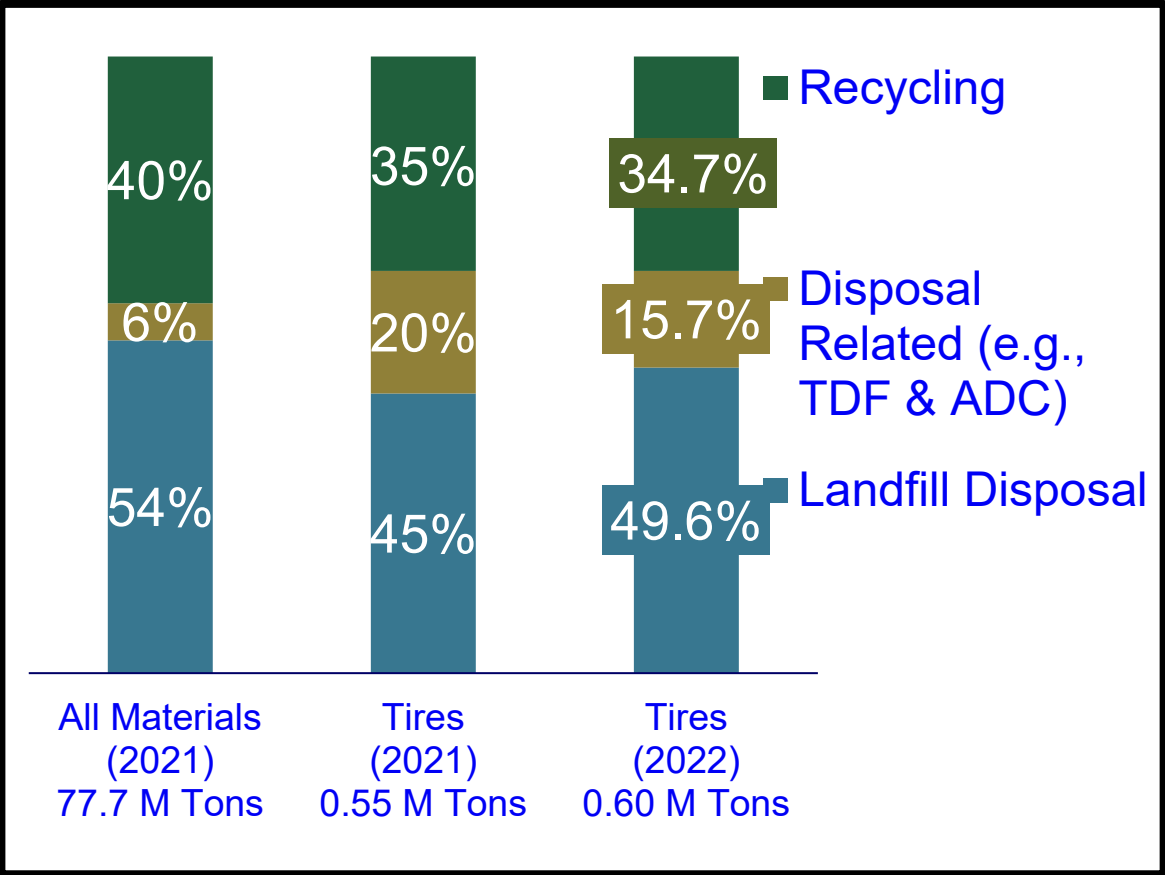
- No solicitation for FY 2022/23 (every other FY grant offering)
- Historic Average: 3 M pounds per year

# 3. Recycling Outlook

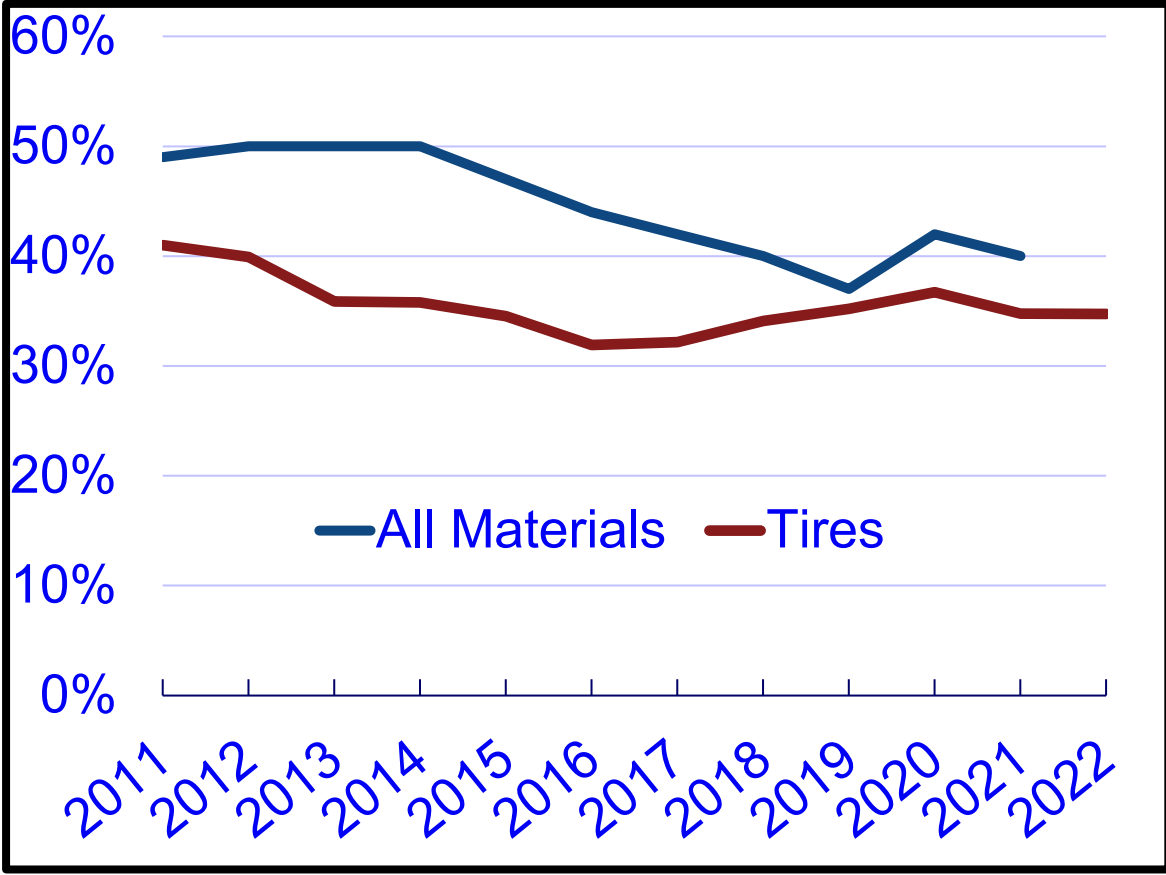
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# Waste Tire Management in the California Context

### How Waste Was Managed



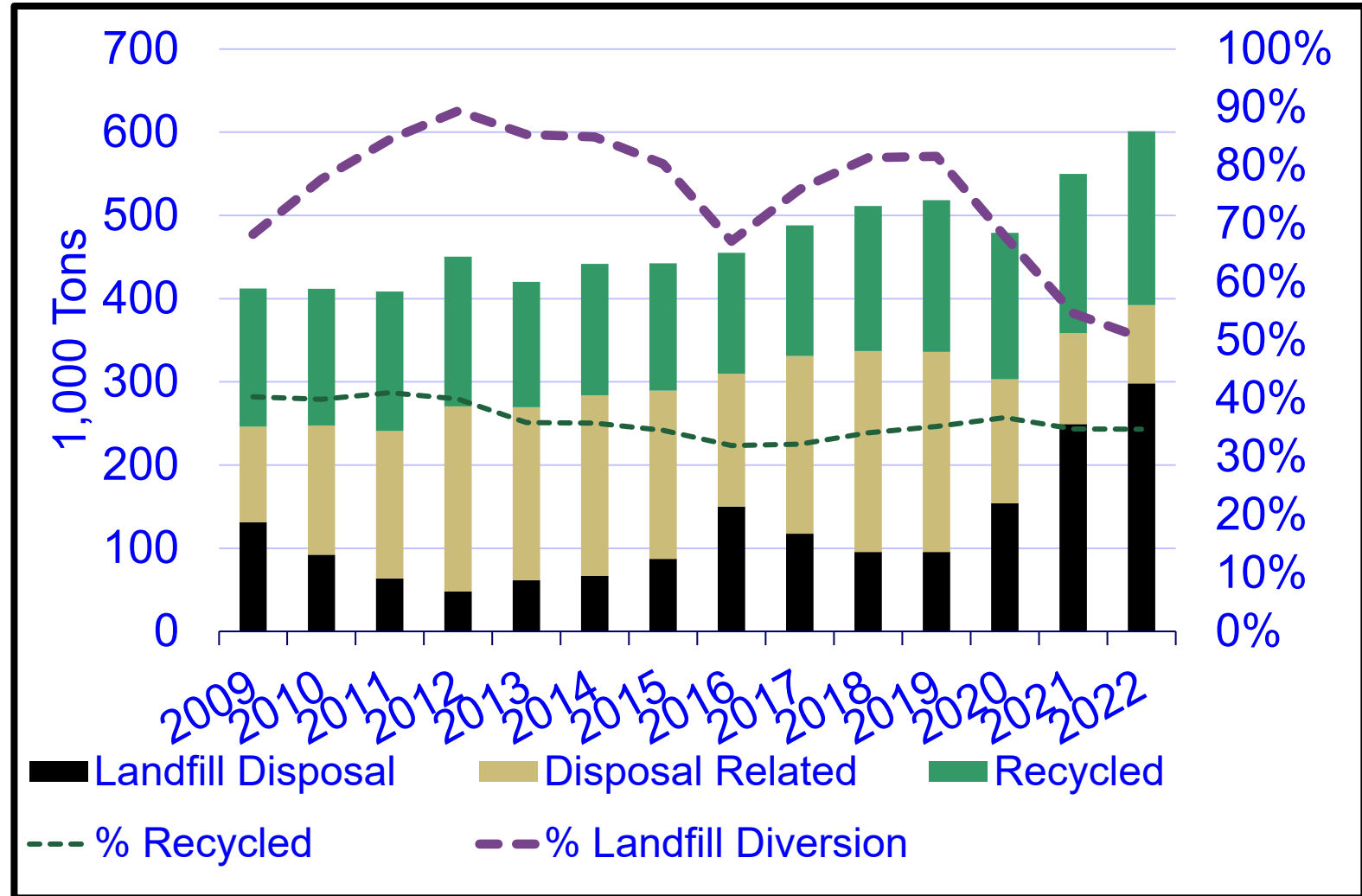
### Recycling Rate Trend



Source for All Materials: CalRecycle Tire market surveys and published website data

# Recycling Outlook

- 2022 Recycling tons up 8.5% to 208,777
- 2022 Recycling rate stable 34.7%
- 2022 Trend Considerations
  - Tonnage is up, recycling rate is stable
  - Pace of Product Diversification
  - Increased PTE imports
  - Recent Investments and Ownership Changes
  - Inflationary pressure



***Feedback Welcome by January 26, 2024***  
***Report Expected February 1st***

# Questions?

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***Register for the CalRecycle 2024 Tire Conference***

***June 19 – 20, 2024, Sacramento, CA***

**WELCOME - CalRecycle 2024 California Tire Conference**  
**([cvent.com](https://cvent.com))**



# Appendix

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Source Data Used for Charts

# Slide 5 Source Data: California Waste Tire Flows (2022)

Category	2022 Tons	2022 Percent
Retreads	57,366	9.5%
Used Tires	49,112	8.2%
Tire-Derived Aggregate	7,371	1.2%
Crumb/Ground Rubber	78,341	13.0%
Other Recycling	16,587	2.8%
TDF (In-State)	32,457	5.4%
TDF (Export)	37,037	6.2%
Baled Waste Tires & Treads (Export)	3,500	0.6%
ADC/Beneficial Reuse	21,169	3.5%
Landfill Disposal	298,084	49.6%
<b>Total</b>	<b>601,024</b>	<b>100.0%</b>

# Slides 6, 8, 9, and 12 Source Data: 13 Year Trend by Market Segment (Tons), Part A

Category	2008	2009	2010	2011	2012	2013	2014
Disposal	145,033	131,152	92,033	63,444	47,908	61,682	66,770
ADC	20,580	12,042	7,928	19,589	10,486	12,316	14,691
Exported TDF & Bales	22,000	33,000	64,000	96,000	135,000	110,144	110,000
In-State TDF	75,020	69,926	83,675	61,911	77,209	85,295	92,352
Other Recycling	14,460	12,221	12,121	13,427	14,059	12,166	11,643
Civil Engineering	27,890	17,510	18,274	5,915	5,844	4,557	12,632
Crumb/Ground Rubber	65,292	55,000	59,850	61,700	68,350	55,350	49,200
Used Tires	33,600	37,266	37,942	45,823	51,678	38,033	42,278
Retread	44,200	44,000	36,018	40,651	39,838	40,635	42,341
<b>Total Managed</b>	<b>448,075</b>	<b>412,117</b>	<b>411,842</b>	<b>408,459</b>	<b>450,372</b>	<b>420,177</b>	<b>441,907</b>



# Slide 6, 8, 9, and 12 Source Data: 13 Year Trend by Market Segment (Tons), Part B

Category	2015	2016	2017	2018	2019	2020	2021	2022
Disposal	87,170	150,226	117,448	95,401	95,412	154,050	249,377	298,084
ADC	15,217	16,798	18,108	17,975	16,784	14,876	17,440	21,169
Exported TDF & Bales	94,000	62,476	113,405	135,236	145,412	76,612	43,664	40,537
In-State TDF	93,165	80,380	82,194	88,386	78,307	57,611	48,243	32,457
Other Recycling	12,114	9,790	10,433	16,791	16,442	11,862	18,082	16,587
Civil Engineering	11,668	10,961	6,431	5,127	13,330	16,911	6,575	7,371
Crumb/Ground Rubber	54,700	43,165	50,345	61,728	59,985	50,530	70,862	78,341
Used Tires	30,927	39,032	41,375	42,692	44,757	51,036	43,044	49,112
Retread	43,358	42,341	48,409	47,925	47,925	45,529	54,635	57,366
<b>Total Managed</b>	<b>442,318</b>	<b>455,168</b>	<b>488,149</b>	<b>511,262</b>	<b>518,353</b>	<b>479,017</b>	<b>551,921</b>	<b>601,024</b>

# Slide 10 Source Data: Exported California-Generated TDF and Waste Tire/Tread Bales (Tons)

Category	2008	2009	2010	2011	2012	2013
Size-Reduced TDF	NA	NA	NA	NA	NA	NA
Baled Waste Tires & Treads	NA	NA	NA	NA	NA	NA
<b>Total Exported TDF/Bales</b>	<b>22,000</b>	<b>33,000</b>	<b>64,000</b>	<b>96,000</b>	<b>135,000</b>	<b>110,144</b>

Category	2014	2015	2016	2017	2018	2019	2020
Size-Reduced TDF	74,000	66,000	47,476	87,317	99,197	114,427	73,412
Baled Waste Tires & Treads	36,000	28,000	15,000	26,089	36,039	30,985	3,200
<b>Total Exported TDF/Bales</b>	<b>110,000</b>	<b>94,000</b>	<b>62,476</b>	<b>113,405</b>	<b>135,236</b>	<b>145,412</b>	<b>76,612</b>

Category	2021	2022
Size-Reduced TDF	40,148	37,037
Baled Waste Tires & Treads	3,516	3,500
<b>Total Exported TDF/Bales</b>	<b>43,664</b>	<b>40,537</b>



# Slide 11 Source Data: California Generated In-State TDF Shipments (Tons)

Category	2008	2009	2010	2011	2012	2013
In-State TDF (Whole Tires and Size-Reduced)	75,020	69,926	83,675	61,911	77,209	81,982
Fiber From Processors	NA	NA	NA	NA	NA	NA
<b>Total Exported TDF/Bales</b>	<b>75,020</b>	<b>69,926</b>	<b>83,675</b>	<b>61,911</b>	<b>77,209</b>	<b>85,295</b>

Category	2014	2015	2016	2017	2018	2019	2020
In-State TDF (Whole Tires and Size-Reduced)	83,934	85,721	72,723	75,989	80,603	70,807	57,939
Fiber From Processors	8,418	7,443	7,656	6,205	7,783	7,500	6,297
<b>Total Exported TDF/Bales</b>	<b>92,352</b>	<b>93,165</b>	<b>80,380</b>	<b>82,194</b>	<b>88,386</b>	<b>78,307</b>	<b>57,611</b>

Category	2021	2022
In-State TDF (Whole Tires and Size-Reduced)	39,704	30,915
Fiber From Processors	8,539	1,542
<b>Total Exported TDF/Bales</b>	<b>48,243</b>	<b>32,457</b>



# Slide 12 Source Data: Tire-Derived Aggregate Trend (Tons)

Category	2008	2009	2010	2011	2012	2013	2014
Landfill Projects	20,060	13,975	17,924	5,915	5,844	2,612	8,806
Non-Landfill Projects	7,300	3,535	350	0	0	1,945	3,826
<b>Total Civil Engineering</b>	<b>27,890</b>	<b>17,510</b>	<b>18,274</b>	<b>5,915</b>	<b>5,844</b>	<b>4,557</b>	<b>12,632</b>

Category	2015	2016	2017	2018	2019	2020	2021	2022
Landfill Projects	10,374	7,083	5,583	4,021	6,682	16,311	6,575	7,371
Non-Landfill Projects	1,294	3,878	853	1,106	6,648	600	0	0
<b>Total Civil Engineering</b>	<b>11,668</b>	<b>10,961</b>	<b>6,431</b>	<b>5,127</b>	<b>13,330</b>	<b>16,911</b>	<b>6,575</b>	<b>7,371</b>

# Slide 13 Source Data: Crumb Rubber and Ground Rubber Shipments (Tons)

Category	2008	2009	2010	2011	2012	2013	2014
Paving	28,066	30,160	35,206	34,043	30,793	24,806	23,429
Turf	15,852	8,723	9,605	11,871	15,089	14,034	11,355
Molded / Other	13,903	7,733	7,308	8,357	10,076	6,583	6,719
Ground Rubber Applications	7,471	8,383	7,731	7,428	12,392	9,927	7,698
<b>Total</b>	<b>65,292</b>	<b>55,000</b>	<b>59,850</b>	<b>61,700</b>	<b>68,350</b>	<b>55,350</b>	<b>49,200</b>

Category	2015	2016	2017	2018	2019	2020	2021	2022
Paving	27,808	NA	NA	NA	NA	NA	NA	NA
Turf	13,415	NA	NA	NA	NA	NA	NA	NA
Molded / Other	4,759	NA	NA	NA	NA	NA	NA	NA
Ground Rubber Applications	8,718	NA	NA	NA	NA	NA	NA	NA
<b>Total</b>	<b>54,700</b>	<b>43,165</b>	<b>50,345</b>	<b>61,728</b>	<b>59,985</b>	<b>50,530</b>	<b>70,862</b>	<b>78,341</b>



# Slide 16 Source Data: Caltrans Rubberized Paving, Part A

## Total Asphalt Placed and Rubber Asphalt % of Total)

Category	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Asphalt Placed (Million Metric Tons)	5.59	3.86	7.52	6.33	4.58	4.12	4.60	4.79	4.06	4.77
Rubberized Asphalt (RHMA) (% of Total)	23.6	30.6	34.7	29.2	22.9	26.7	41.3	39.8	45.0	46.3

Category	2019	2020	2021	2022
Total Asphalt Placed (Million Metric Tons)	3.86	3.4	3.28	2.70
Rubberized Asphalt (RHMA) (% of Total)	39.8%	41.3%	38%	35.8%

Source: Caltrans Annual Crumb Rubber Reports, Draft 2022 report values.

# Slide 16 Source Data: Caltrans Rubberized Paving, Part B

## Caltrans Crumb Rubber Used and Pounds per Total Metric Ton Asphalt Placed

Category	2009	2010	2011	2012	2013	2014	2015	2016	2017
Caltrans Crumb Rubber Used (M Pounds)	40.1	35.9	77.5	52.3	32.5	35.2	60.8	60.9	58.5

Category	2018	2019	2020	2021	2022
Caltrans Crumb Rubber Used (M Pounds)	70.8	54.1	49.6	45.3	34.0

Source: Caltrans Annual Crumb Rubber Reports



# Slide 19 Source Data: All Materials and Tires Recycling Rate Trend, Part B (Right Chart)

Year	All Materials Recycling Rate	Waste Tires Recycling Rate
2010	49.0%	39.9%
2011	49.0%	41.0%
2012	50.0%	39.9%
2013	50.0%	35.9%
2014	50.0%	35.8%
2015	47.0%	34.5%
2016	44.0%	31.9%
2017	42.0%	32.2%
2018	40.0%	34.1%
2019	37.0%	35.2%
2020	42.0%	36.7%
2021	40.0%	35.0%
2022	NA	34.7%



# Slide 19 Source Data: How Waste Was Managed, Part A (Left Chart)

Category	All Materials (2021) 77.7 M Tons	Tires (2021) 0.55 M Tons	Tires (2022) 0.60 M Tons
Landfill Disposal	54%	45%	49.6%
Disposal Related	6%	20%	15.7%
Recycling	40%	35%	34.7%
Total	100%	100%	100%

# Slide 20 Source Data: Recycling and Diversion Trend

Category	2008	2009	2010	2011	2012	2013	2014
Landfill Disposal (Tons)	145,033	131,152	92,033	63,444	47,908	61,682	66,770
Disposal Related (Tons)	117,600	114,968	155,603	177,500	222,695	207,754	217,043
Recycled (Tons)	185,441	165,997	164,206	167,516	179,768	150,741	158,094
% Recycled	41.4%	40.3%	39.9%	41.0%	39.9%	35.9%	35.8%
% Landfill Diversion	67.6%	68.2%	77.7%	84.5%	89.4%	85.3%	84.9%

Category	2015	2016	2017	2018	2019	2020	2021	2022
Landfill Disposal (Tons)	87,170	150,226	117,448	95,401	95,412	154,050	249,377	298,084
Disposal Related (Tons)	202,382	159,654	213,707	241,597	240,503	149,099	109,347	94,163
Recycled (Tons)	152,767	145,288	156,994	174,264	182,438	175,868	193,197	208,777
% Recycled	34.5%	31.9%	32.2%	34.1%	35.2%	36.7%	35.0%	34.7%
% Landfill Diversion	80.3%	67.0%	75.9%	81.3%	81.6%	67.8%	54.8%	50.4%