



Approved 11/20/2024 - CC

SUMMARIZED MEETING MINUTES

City of Scottsdale
Scottsdale Environmental Advisory Commission (SEAC)
Regular Meeting

5:30 p.m. Wednesday, October 16, 2024
Community Design Studio Nave
7506 E. Indian School Road, Scottsdale 85251

Call to Order 5:34 p.m.

PRESENT: Chair Ute Brady, Vice Chair Scheck; Commission Members: Alexandra Craig, Walter Cuculic (virtually; arrived at 5:41; departed early), Tara Iyengar, Ryan Johnson, Alisa McMahon

ABSENT: None

STAFF PRESENT: Lisa McNeilly, Sustainability Director; Cindi Eberhardt, Planning & Development Area Director

PUBLIC COMMENT: None.

1) Approve Meeting Minutes for August 28, 2024

Chair Brady made a motion to approve the Regular Meeting Minutes for August 28, 2024, with Vice Chair Scheck providing a Second for the motion, which carried 5-0. Commissioners Brady, Scheck, Craig, Iyengar and Johnson voted for APPROVAL. Commissioners Cuculic and McMahon were not present for the vote.

2) Scottsdale Community Sustainability Plan

Commissioner McMahon reviewed possible clarifications to the sustainability plan, based on the draft posted as part of the May 21, 2024 City Council meeting agenda. Lisa McNeilly, Sustainability Director, described the summarized feedback of the community meetings hosted in September.

Commissioner McMahon made a motion to recommend that the clarifications discussed at the meeting be made to the sustainability plan before adoption but only to transmit them to City Council if the plan is agendized this year.

Commissioners also discussed recommending that City Council agendize adoption of the Sustainability Plan before the end of 2024.

Commissioner Johnson made an amended motion to recommend that the clarifications discussed at the meeting be made to the sustainability plan before adoption, with Vice Chair Scheck providing a Second for the motion, which carried 7-0. All members voted for APPROVAL.

Commissioner Johnson made a motion to transmit a letter of recommendation (attached) to City Council related to the sustainability plan, with Vice Chair Scheck providing a Second for the motion, which carried 6-0. All members present voted for APPROVAL. Commissioner Cuculic was not present for the vote.

3) Sustainable Scottsdale Awards

Commissioner Craig reviewed slides (attached) showing the timeline for the award process and the draft questions for finalists.

4) Plastic waste and health

This item was deferred.

5) Staff Updates

Lisa McNeilly shared updates on the Sustainable Scottsdale award program, the timing of SEAC's Sunset Review, Scottsdale Airport's Master Plan process and Scottsdale's recognition as an SRP Sustainable City.

6) Identification of Future Agenda Items

Chair Brady asked Commissioners to send her and the staff liaison any suggested agenda items. Commissioner Craig suggested a presentation on community engagement and education.

Adjournment 8:02 p.m.



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October 23, 2024

Honorable Mayor Ortega and Members of the City Council,

Following two community workshops on sustainability in September in which over 90% of the comments received were favorable, the Scottsdale Environmental Advisory Commission (SEAC) recommends that City Council agendaize adoption of the Community Sustainability Plan before December 31, 2024. At its October 16, 2024, meeting, SEAC also voted to recommend the attached clarifications be made to the sustainability plan before adoption.

Respectfully,

Ute Brady, Chair
ubrady.az@gmail.com

Andrew Scheck, Vice-Chair
andrew.scheckny@gmail.com

Attachment:

1. Recommended Clarifications to Community Sustainability Plan

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* Page numbers in lower right corner

ATTACHMENT 1: Recommended Clarifications to Community Sustainability Plan

The Air Quality and Extreme Heat health-related targets and the associated Air Quality indicator were changed after the March 19, 2024 Work Study as follows:

Priority	Indicator	Target
Air Quality page 86	Number of hospitalizations illnesses for pollution-related health events per 100,000 population in Scottsdale (2021 = 2,948.3)	Reduce hospitalizations illnesses for pollution-related health events (per 100,000 population) by 2030
Extreme Heat page 98	Heat-related morbidity and mortality resulting in hospitalization, per 100,000 population (2022 deaths = 2.8) (2022 illnesses = 36.1)	Reduce hospitalizations illnesses for heat-related health events (per 100,000 population) by 2030

typo in draft: "heat-related related"

PROBLEM

What does the Air Quality target "reduce illnesses for pollution-related health events" mean?

Let's start with: what is a "pollution-related health event"? It's not a defined term in the plan. On its face, it's a health event – illness or death – caused or exacerbated by exposure to pollution (here, air pollution). Examples: asthma attack, aggravation of COPD. So, the target essentially says: "reduce illnesses for pollution-related illnesses."

It's the same story for the Extreme Heat target "reduce illnesses for heat-related health events." A "heat-related health event" is an illness or death caused or exacerbated by exposure to heat. Examples: heat exhaustion, heat stroke. So, the target essentially says: "reduce illnesses for heat-related illnesses."

SOLUTION

Answering three questions will clarify these indicators and targets:

1. What do we want to reduce – illnesses, deaths or both?

City Council did not provide direction or even discuss this question in the Work Study. The subsequent change from "hospitalizations" to "illnesses" implies that deaths have been excluded from the targets. However, "mortality" and baseline death counts remain in the Extreme Heat indicator.

2. Does the data in the tables on pages 86 and 98 represent hospitalizations, hospital encounters, or something else? What terminology does Maricopa County Department of Health use and how is it defined?

This matters because "hospitalization" implies admission. "Hospitalization" is generally defined as an inpatient stay of at least 24 hours:

Care in a hospital that requires admission as an inpatient and usually requires an overnight stay. An overnight stay for observation could be outpatient care.

[www.healthcare.gov/glossary/hospitalization/]

So, does the county illness data include, for instance, an ER visit for asthma or heat exhaustion that does not result in admission?

3. Do the reported deaths in the tables on pages 86 and 98 include *all* deaths or *only those that occurred in a hospital*?

Answers to questions 2 and 3 should be readily available from the county health department.

The next two pages provide options for indicator and target language – one page for illness and one page for illness and death.

In sum, we need to clarify our intent for the health-related targets, select target language that makes sense, and select indicator language that aligns with those targets.

Illnesses Only; Deaths Not Included

Indicator Options

Number of ph-related illnesses **treated in a hospital** per 100,000 population in Scottsdale
(2022 = y)

Number of ph-related illnesses **that result in hospitalization** per 100,000 population in Scottsdale
(2022 = y)

Number of ph-related illnesses **that result in a hospital encounter** per 100,000 population in Scottsdale
(2022 = y)

Target Options

Reduce ph-related illnesses **treated in a hospital** per 100,000 population by 2030

Reduce ph-related illnesses **that result in hospitalization** per 100,000 population by 2030

Reduce ph-related illnesses **that result in a hospital encounter** per 100,000 population by 2030

Reduce **the number of** ph-related illnesses **treated in a hospital** per 100,000 population by 2030

Reduce **the number of** ph-related illnesses **that result in hospitalization** per 100,000 population by 2030

Reduce **the number of** ph-related illnesses **that result in a hospital encounter** per 100,000 population by 2030

Notes

1. **ph**-related = **p**ollution-related or **h**eat-related
2. **blue** text highlights the differences between the options; black text is the same in all options
3. If either term is used, provide a definition of "hospitalization" or "hospital encounter" as defined by the Maricopa County Department of Public Health.

Illnesses and Deaths Included

Indicator

Number of ph-related health events per 100,000 population in Scottsdale
(2022 deaths = x)
(2022 illnesses = y)

Target Options

Reduce ph-related health events per 100,000 population by 2030
Reduce **the number of** ph-related health events per 100,000 population by 2030

Notes

1. **ph**-related = **pollution**-related or **heat**-related
2. **blue** text highlights the differences between the options; black text is the same in all options
3. The key to making this format clear is providing a complete definition of "health events" in the plan. State what is not included in "health event" counts, e.g., illnesses treated in a non-hospital setting or deaths that occur outside of a hospital. (These are just examples and may not be applicable.)
4. This indicator and target language could be used even if deaths are not included by defining "health events" accordingly.
5. Depending on the answers to the questions, other structures are possible, for example, one similar to the current Extreme Heat indicator.

pg black and red = current text and redlined changes
 blue = reasons, explanation, sources

82 To reduce PM-10, Scottsdale makes extensive use of recycled asphalt millings and stabilizers for dust mitigation on unpaved lots and roads.

Accuracy. Dust mitigation is a PM-10 reduction strategy. PM-2.5 is primarily a combustion by-product from burning fossil fuels and wood. (Source: www.lung.org/research/sota/health-risks)

82 Ground-level ozone is created when nitrogen oxides, volatile organic compounds, and sunlight react, ~~making ozone primarily a summer issue.~~ Because of sunlight's role in ozone formation, ozone levels exceed federal health standards more often in spring through fall when longer days provide more hours of sunlight.

Ozone exceedances in the Valley quite commonly occur in April and September and even occur in March and October. This April, we had one ozone exceedance and three ozone High Pollution Advisories (HPAs). In May, we had seven ozone exceedances and seven ozone HPAs. In September, we had seven ozone exceedances and three ozone HPAs. In fact, we had more ozone exceedances in May and September than in June. From October 1 to 9, we had three ozone exceedances and four ozone HPAs.

83 Figures 1 2, 2 3 and 3 4 illustrate readings . . .

84 The PM-2.5 graph is ineffective because a) the January 2022 New Year's spike buries the story and b) the North Phoenix and Tempe lines excessively overlap. Solution:
 1) a y-axis break between 200 and 350 (see broken y-axis graph example on page 3 of 4 herein) and
 2) make the graph taller (same size as the PM-10 graph).

86 This important point is missing: The counts of asthma and other illnesses in Table 1 **include only those that resulted in hospital encounters.** Add this note beneath Table 1:

Table 1 includes only illnesses treated in a hospital.

If the illness data in Table 1 does not include *outpatient* hospital care:

Table 1 includes only illnesses treated inpatient in a hospital.

86 Do the reported deaths include *all* deaths or *only those that occurred in hospitals*? If the latter, add this note beneath Table 1:

Table 1 includes only deaths that occurred in a hospital.

86

Table 1	2022
Asthma illnesses	156.1 (398)
COPD illnesses	163.5 (398)

Same total frequency; different per 100,000.
 The error is most likely either COPD illnesses per 100,000 or COPD total frequency.

86

Table 1. Incidents among Scottsdale residents ...

Does Maricopa County's Office of Epidemiology provide "incident" data or "incidence" data? Table 2 in the Extreme Heat section was changed from "Incidents" to "Incidence," but Table 1 in Air Quality was not. Are both sections consistent with the data as reported by the source?

86

Indicator: ~~(2021 = 2,948.3)~~ (2022 = 3,075.3)

We have 2022 data in Table 1. We use 2022 data for heat-related illnesses and deaths in the parallel indicator in Extreme Heat. Everywhere else in the plan, the indicators reference the most recent data available. Is there a reason for using 2021 data in this indicator?

87

Even as population and vehicle travel ~~has have~~ increased, ozone levels decreased by 13 parts per billion (ppb) between 2000 and ~~2020~~ 2017, but ~~subsequently~~ increased by ~~approximately two parts per billion~~ six ppb ~~since 2020~~ from 2017 to 2022 according to the Maricopa Association of Governments. ~~In 2022, the measured ozone level was 11 ppb higher than the federal health standard; even with wildfire events excluded, ozone exceeded the standard by 7 ppb.~~

without legislative edits:

Even as population and vehicle travel have increased, ozone levels decreased by 13 parts per billion (ppb) between 2000 and 2017, but subsequently increased by six ppb from 2017 to 2022 according to the Maricopa Association of Governments. In 2022, the measured ozone level was 11 ppb higher than the federal health standard; even with wildfire events excluded, ozone exceeded the standard by 7 ppb.

First sentence: The sentence is misleading. The citation for the sentence is a MAG letter. The letter does not actually state by what year in the 20-year period ozone had decreased 13 ppb and does not mention the subsequent 4 ppb *increase* during that time period. Looking at the actual data (see page 4 of 4 herein), the 13 ppb decrease was achieved in 2017 (88 ppb to 75 ppb). From that low, the Valley's ozone level has consistently *risen*. Between 2017 and 2020, the level rose 4 ppb to 79 ppb. In the following two years, it rose another 2 ppb to 81 ppb. So, between the years 2000 and 2022, the net reduction from 2000 was 7 ppb – not 11 ppb as the sentence implies.

Second sentence: The important take-home message is where we stand today (through 2022) relative to the federal health standard.

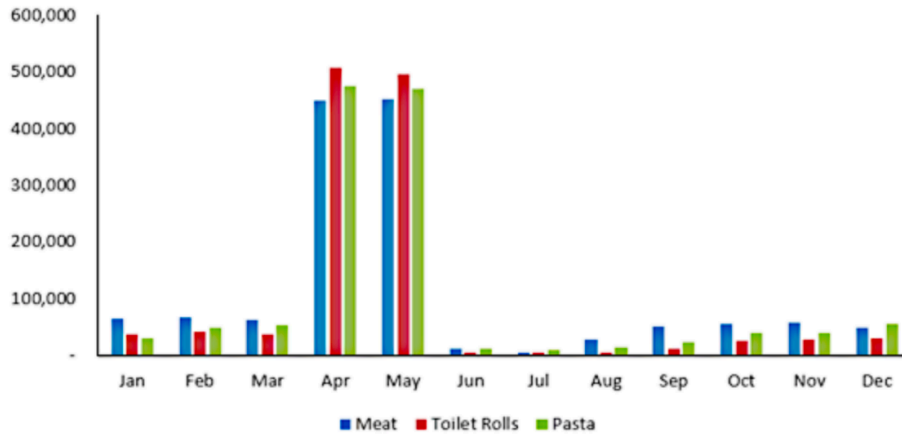
87

However, federal standards for ozone ~~and PM-2.5~~ are tightening due to an improved understanding of the health effects. ~~and in~~ Metro Phoenix currently has the fifth-worst ozone levels in the country ... Metro Phoenix is currently ranked ninth for worst PM-2.5 pollution ...

Adding "PM-2.5" to that sentence is timely. Effective May 6, 2024, the primary annual PM-2.5 federal standard was strengthened, **specifically to provide increased public health protection consistent with the latest available health science**. Studies demonstrate that adverse health effects from exposure to PM-2.5 are occurring at concentrations allowed by the previous standard (set in 2012). Moreover, adding PM-2.5 to the first sentence in the paragraph works well with the newly-added last sentence, tying the paragraph together.

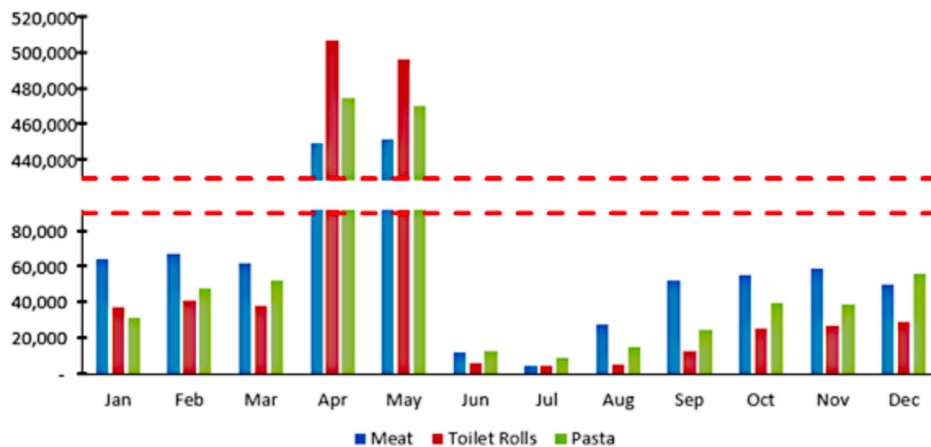
Broken y-axis chart example:

If I use a Clustered Column chart to represent this data, the problem becomes apparent — see the following screenshot:



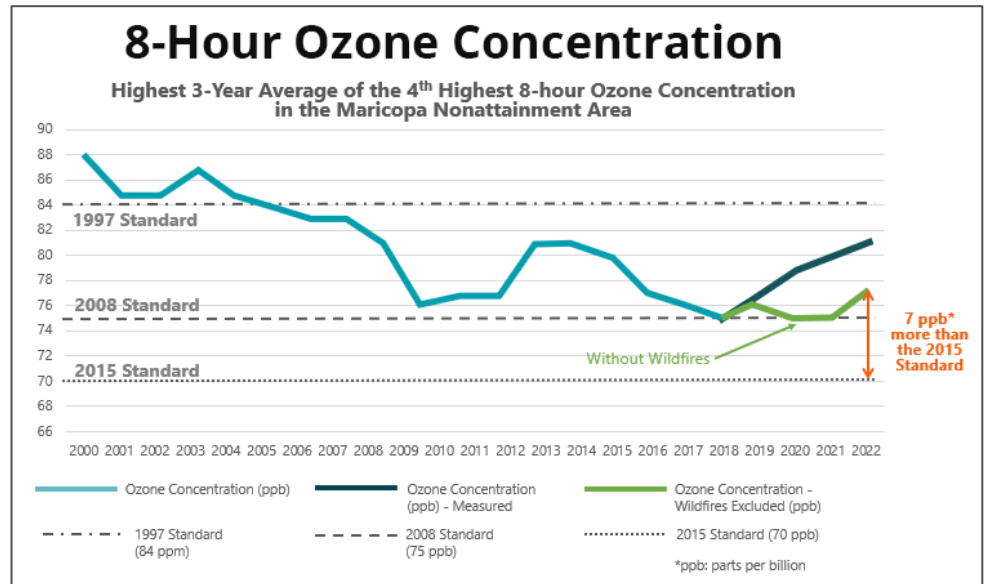
The majority of the data is swamped by the large values for April and May. If you can quantify the values for July and August from this chart alone, I suggest you do not need to see an optometrist any time soon.

One way to display this data is by using a "broken y-axis" chart, where not all the values on the y-axis are shown — see the screenshot below. (Please also refer to the downloadable [Excel file](#) for a modelled example).



Source: www.fm-magazine.com/news/2022/nov/excel-broken-y-axis-charting.html

Phoenix-Mesa, AZ	
8-Hour Ozone	
3-Year Period	Design Value (ppm)
1998-2000	0.088
1999-2001	0.085
2000-2002	0.085
2001-2003	0.087
2002-2004	0.085
2003-2005	0.084
2004-2006	0.083
2005-2007	0.083
2006-2008	0.081
2007-2009	0.076
2008-2010	0.077
2009-2011	0.077
2010-2012	0.081
2011-2013	0.081
2012-2014	0.080
2013-2015	0.077
2014-2016	0.076
2015-2017	0.075
2016-2018	0.077
2017-2019	0.077
2018-2020	0.079
2019-2021	0.080
2020-2022	0.081



Notes

1. For simplicity and to be consistent with the Plan, we refer to the 3-year period values by the final year in the period.
2. The shaded cells in the table highlight the years discussed.
3. See MAG website below for a larger, clearer version of the graph.

Sources

EPA www.epa.gov/air-trends/air-quality-design-values
 MAG <https://azmag.gov/Programs/Environmental/How-Ozone-Impacts-the-Maricopa-Region>

1. SEAC strongly recommended the Sustainability Plan include a structured shade target. City Council concurred. At the March 19, 2024 Work Study, City Council agreed to staff's request to defer setting the specific target until more data could be collected in conjunction with development of the Shade & Tree Plan. That project launched in February 2024 and wraps in February 2025. Can the consultants' recommendation for the structured shade target be ready in time for this plan?

Fun facts drawn from the "Cooler Scottsdale" study [pages 78 and 79]:

- Each 1% increase in asphalt land cover was associated with a 0.31°F increase in land surface temperature at the census block group scale.
- Airborne thermal imagery identified hard, dark surfaces as having some of the highest land surface temperatures during the early morning flight, an indication of the heat-retaining properties of those surfaces that contribute to the urban heat island effect.
- Thermal images taken across Scottsdale growth areas show significantly lower surface temperatures under full, large overhangs – as much as ~50-70°F cooler than the same sun-exposed surface.

Let's not miss the opportunity to have a structured shade target in our Sustainability Plan!

2. Land cover percentages were added to Figure 3 after the March 19, 2024 Work Study (page 101, middle right). The "Cooler Scottsdale" study is listed as the source for Figure 3. But one of the percentages is not found in that study. Where does "Tree Canopy 6%" come from?

In "Cooler Scottsdale," the only reference to 6% is the tree and shrub land cover percentage in the South Scottsdale Growth Area (known as the "McDowell Road/Scottsdale Road Growth Area" in General Plan 2035). ["Cooler Scottsdale" pages 2, 11, 32, and 74]

"Cooler Scottsdale" does not contain even an estimate of tree canopy – 6% or otherwise. In fact, the study states [page 32]:

Direct estimates of tree canopy coverage (excluding shrubs, accounting for varying tree crown diameters) are not directly available from either the LiDAR or land cover classification data.

Does "Tree Canopy 6%" perhaps come from the TNC study cited in this plan's Introduction, "Economic Assessment of Heat in the Phoenix Metro Area"? That study estimated a baseline urban tree canopy for the **entire county** of "just over 6%" based on 2016 data from the Arizona Department of Forestry and Fire Management (DFFM). [citation: <https://dffm.az.gov/azutm/resources>]

In reviewing that source, I found more granular data. Specifically, the [2016 Arizona Urban Tree Canopy Cover by City Summary Table](#) reports a 9.00% tree canopy for the City of Scottsdale.

Note that although the summary table is titled 2016, DFFM's webpage indicates the analysis was done in 2015. Coincidentally (or not?), the underlying data used for the "Cooler Scottsdale" land cover analysis was collected that same year. "Cooler Scottsdale" estimated Scottsdale's 2015 citywide tree **and shrub** coverage at 13%.

Data accuracy is important for our tree and shrub canopy target. At minimum, the source for "Tree Canopy 6%" should be identified and verified. Possibly, the percentage should be deleted.

3. Also with respect to the land cover percentages added to Figure 3:
In the "Cooler Scottsdale" study, asphalt land coverage and building land coverage were measured and analyzed as two distinct categories, and were found to have different heat impacts. Given that we commissioned a study that provided that level of detail, why not list the separate percentages in Figure 3: Asphalt 17% and Building 16%? There is plenty of room to add the remaining two citywide land cover classifications as well: Grass 7% and Water 1%.
Recommendation: list all six "Cooler Scottsdale" land cover classification percentages.
4. For the reasons discussed in #2 and #3, respectively, these changes should be made on page 100:

The amount of green landscape varies across the city, and tree ~~and shrub canopy~~ coverage is as low as 6% in south Scottsdale.

13% of Scottsdale is covered with trees and shrubs, with larger percentages being asphalt (17%), ~~and~~ buildings (~~33~~ 16%) or bare soil and concrete (45%).
5. The plan is unclear as to whether heat-related deaths include *all* deaths or *only those that occurred in hospitals* (page 98).
 - The wording of the indicator conveys that mortality data is limited to deaths in hospitals:
Heat-related morbidity and mortality resulting in hospitalization, per 100,000 population
 - The wording in the second paragraph can be taken two ways:
In Scottsdale, heat-related mortality and illnesses resulting in hospitalization are lower ...
"Resulting in hospitalization" can apply to illnesses only or to both mortality and illnesses.
 - Table 2 doesn't indicate either way.

⇒ If the data includes all deaths, whether they occurred in a hospital or not, make these changes:

 - 1 In the indicator, move "resulting in hospitalization" so it applies only to morbidity:
Heat-related morbidity **resulting in hospitalization** and mortality ~~resulting in hospitalization~~, per 100,000 population
 - 2 In the second paragraph, flip mortality and illnesses to make it clear hospitalization applies only to illnesses:
In Scottsdale, heat-related **illnesses resulting in hospitalization mortality** and **illnesses resulting in hospitalization mortality** are lower ...

⇒ If the data includes only deaths that occurred in a hospital, make this change:

 - 1 Add this note beneath Table 2:
Table 2 includes only deaths that occurred in a hospital.

6. "Hospitalization" is used three times on page 98. In Air Quality, the term "hospital encounters" is used. Which term does the Maricopa County Department of Public Health use for reporting heat-related illnesses and deaths? How is it defined? The difference matters because "hospitalization" implies admission, whereas the illness data in Table 2 may include, for example, ER visits that did not result in admission.

7. Table 2 (page 98)

- We must be clear that the illness data in Table 2 *includes only those illnesses that resulted in hospitalizations*. A sentence in the second paragraph on page 98 is an attempt to do that. However, it refers to "data" generally (as opposed to "the heat illness data in Table 2") and the double negative is confusing. A better alternative would be to replace that sentence with one of these notes beneath Table 2:

Table 2 includes only illnesses treated in a hospital.

Table 2 does not include illnesses treated in places other than a hospital.

- If the illness data in Table 2 does not include *outpatient* hospital care, use one of these notes beneath Table 2 instead:

Table 2 includes only illnesses treated inpatient in a hospital.

Table 2 does not include illnesses treated outpatient in a hospital or treated in places other than a hospital.

- Does Maricopa County Department of Health provide "incident" data or "incidence" data? Presumably in response to that question, the title of this table was changed from "Incidents" to "Incidence." But Table 1 in Air Quality was not changed. Are both sections consistent with the data as reported by the County?

8. This sentence on page 96 is not accurate:

Comparing recent averages (2015-2023) to earlier years (2001-2014), there are now 5-8 additional days each year with extreme heat.

"Extreme heat" is defined in the Glossary (page 111) as:

A period of at least 2-3 days of high heat with temperatures above 90 degrees, according to the Arizona Emergency Information Network.

The data in Table 1 does not document 2-3 day periods of 90+ temperatures. It documents the average number of days over 110 degrees and the average number of nights over 90 degrees.

This sentence would accurately convey the data:

Comparing recent averages (2015-2023) to earlier years (2001-2014), there are now 8 additional days each year with highs above 110 degrees and 5 additional days each year with lows above 90.

The first sentence in the same paragraph on page 96 is not supported in the plan by data or citation, "excessively hot" and "heat season" are undefined, and the causal nexus is not established. A greater number of excessively hot days and nights does not necessarily indicate the heat season is getting longer; the excessively hot days and nights could all occur within the traditional heat season. If the sentence remains in the plan, at least the causal nexus should be removed:

The number of excessively hot days and nights is also increasing, ~~indicating that~~ and the heat season is getting longer.

9. HT 4.6 (page 105 & 108)

Suggested language options:

Amend planning documents and the zoning ordinance to ensure new development accommodates the size and above- and below-ground needs of trees at maturity.

Amend planning requirements and process to ensure new development accommodates the size and above- and below-ground needs of healthy trees at maturity.

Language in current draft:

Plant trees in appropriate locations to accommodate their growth.

Note that length is not an issue. HT 4.1 and HT 4.5 are longer than the suggested language.

The stated purpose of this "action" was to provide for the long-term health and survival of the trees we require in the Planning & Development process. Planning that accommodates the size and above- and below-ground needs of trees at maturity includes, for example: space for roots, roots not being enveloped in heat-trapping hardscape surfaces, space for natural height without topping, space for natural form without constant pruning [see WST 4.5], and sufficient space to maintain clear traffic sight lines – all factors that must be addressed long before trees go in the ground.

The current draft language is unlikely to result in Planning & Development efforts to accomplish the stated goal.

In addition, Parks & Rec is listed as the Lead. However, since HT 4.6 is directed at the *planning and development process* to ensure a long life for trees required of *private sector projects*, Planning & Development is the more appropriate Lead.

10. Figure 1 (page 95)

To enclose the high temps line on the y-axis, remove the irrelevant 95° line and add a 115° line.

Golf course target: Eleven months ago, at the November 13, 2023 Work Study Session, staff asked for more time to put together a golf course target. Councilwomen Janik requested that discussions continue with "a sense of immediacy . . . pedal to the metal." Councilmembers Graham and Whitehead linked the credibility of the Plan with addressing golf course water consumption. Target? Action(s) to meet that target?

pg black and red = current text and redlined changes
 blue = reasons, explanation, sources

57
When looking at total potable water demand data over the last decade and a half, a steady slight decrease in total demand and an increase in the number of accounts tells the story of conservation and increased efficiency.

...

In 2022, Scottsdale Water customer accounts ~~totaled~~ **used** more than 70,000 acre-feet of potable water or 62 million gallons per day of safe, reliable drinking water. **Total water use is on a downward trend even as the number of connections has increased by 9% (Figure 1).** It is important to note that Figure 1 represents metered data and not total water production.

- 9% over what time period?
- Figure 1 . . .
 - Does not depict the number of accounts or connections (increase or otherwise). That data could be incorporated on the right side y-axis. See example of dual y-axis chart on page 4 of 4 herein.
 - Does not depict a percent change in the number of connections (9% increase or otherwise).
 - Does not depict a downward trend in total water use since 2010 (even disregarding the anomalous year 2020).¹
 - Therefore, does not support the statement: "total water use is on a downward trend even as the number of connections has increased."
 - Indicates 2022 metered demand is just under 70,000, not "more than 70,000 acre-feet." An acre-foot is a big amount. Which is correct?
- Identify the dashed yellow line in Figure 1.
- It is unclear why "it is important to note that Figure 1 represents metered data and not total water production."

¹ Disregarding the anomalous year 2020:

Compared to 2006-2009, annual demand from 2010-2023 is lower. But it's up and down. The demand over each of the past three years (2021-2023) was a) *higher* than in 2010, 2011, 2013, 2015, 2016 and 2019 and b) similar to 2012, 2014, 2017, and 2018. (2023 is not shown in Figure 1, but Scottsdale Water delivered roughly the same amount of potable water in 2022 and 2023.)

58

Average residential water use varies by meter size and by season. The number of total customers has grown since 2014, but demand has decreased, showing that growth has not affected water use (Figure 3).

- Figure 3 . . .
 - Does not depict total customers (growth or otherwise). Total customers can be depicted on a dual y-axis chart as shown in the example on page 4 of 4 herein.
 - Does not depict total residential demand or total single family residential demand (decrease or otherwise).
 - Therefore, does not support the statement: "growth has not affected water use."
 - Depicts only the average gallons used per meter size and, with some small variation, the averages are relatively flat over time. Generally, 2016, 2020 and 2023 had relatively similar lower use, with higher use in the years between. If average use per meter size is flat, then more meters equals *higher* total use.
- Identify the y-axis. Is it average gallons used per meter size per month ?
- It would be great to have a graph that *does* demonstrate a reduction of use with growth. But neither Figure 1 or Figure 3 does so. And that calls into question the conclusions in this paragraph as well as the first and last paragraphs on page 57.

59

Scottsdale Water has targeted improvements in the amount of water used by Multi-Family Residential (MFR) customers and their HOAs to irrigate their common areas ...

What about single family residential HOA common areas? What about MFR without HOAs?

59

Target: Reduce irrigation water use for HOA properties by 10% by 2033 (from 2022 levels)

The 2022 baseline is still TBD. Is the 2022 data still unavailable?

60

Advanced Water Treatment Facility

60

Another portion of the ARPW is delivered to ~~turf facilities~~ golf courses through the Reclaimed Water Distribution System (RWDS).

Transparency.

(If any facilities other than golf courses are receiving RWDS water, say: golf courses and _____.)

60

Indicator: Return flow percentage ~~or wastewater captured in the sewer collection system~~

"Or" is confusing. It raises the question: are they two different things?

- If they're different, explain the difference.
- If "wastewater captured in the sewer collection system" is a definition of "return flow percentage," define it in the glossary, not the indicator.

60

- Option 1 Target: Increase return flow percentage by 10% by 2033 (from 20?? levels)
- Option 2 Target: Increase return flow percentage to 43% of total potable water demand by 2033

What are we aiming to increase by 10% from? The indicator lists the 2022 percentage as 33%, Figure 4 indicates a 33% "average" over an unspecified period of time, and the paragraph above the graphic speaks of "increas[ing] the return flow percentage over what has been seen in the last 10 years."

- Whatever the baseline is, state it in the target (option 1). Or state the percentage to be achieved (option 2).
- If the baseline is not "from 2022 levels," revise the indicator accordingly.

61

Target: Maintain treated groundwater deliveries to Safe Yield levels

Why "treated"? "Treated" begs the question: Are there untreated groundwater deliveries?

- If the answer is no, delete "treated."
- If the answer is yes, explain. Are those deliveries not counted in Safe Yield calculations?

61

Figure 5: SINCE THE LATE 1990s 250,000 ACRE-FEET OF WATER BANKED

Conversely, the city website states Scottsdale has recharged over 70 billion gallons since 1988. That's a big difference: 11 billion gallons/35 acre-feet less over 10 years more. What is the correct amount?

gallons	acre-feet	timespan	source
70,000,000,000	214,822	since 1988	website
81,462,857,973	250,000	since late 1990s	plan

65

WTR 2.1 Remove non-functional/non-recreational turf at city facilities and retrofit municipal irrigation systems to smart controllers.

- These are two very different actions and should be listed and tracked separately.
- Both should state a specific time horizon for completion.
- Do any facilities not under Parks & Rec's domain have non-functional turf or irrigation systems? If so, add Facilities and/or the appropriate department(s) to "Lead."

65

WTR 2.2 Monitor leaks and implement advanced drip irrigation systems.

- These are two very different actions and should be listed and tracked separately.
- Monitor leaks: Should include indoor leaks too. Accordingly, add "Facilities" to "Lead."
- Implement advanced drip irrigation systems:
 - Do any facilities not under Parks & Rec's domain require such systems? If so, add the appropriate department(s) to "Lead."
 - State a specific time horizon for completion.

65

WTR 2.3 Maintain high-efficiency toilets and faucets in city buildings.

- "Maintain" is unclear. Maintenance? Installation? Clarify what's to be done.
- If the intent is installation, add a specific time horizon for completion.
- Add "showers" or "showerheads" (for city facilities such as aquatic centers).

65

WTR 2.4 Install new cooling tower controllers in all municipal facilities by 2025.

- Wasn't this completed by January 2023? It appears so from published reports and Water Resources' comments at the November 2023 Work Study. If completed nearly two years ago, good job! This action should be deleted.

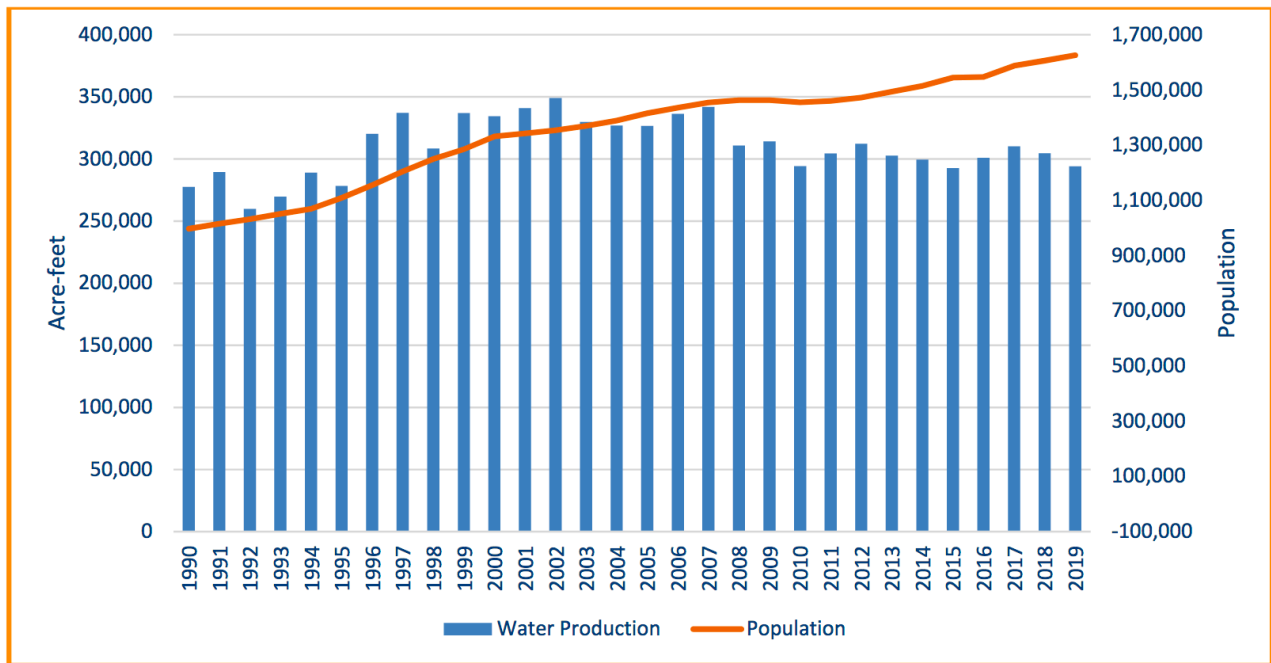


FIGURE 3. PHOENIX WATER PRODUCTION VS POPULATION GROWTH, 1990 - 2019

Example of dual y-axis chart.

ATTACHMENT 1: Recommended Clarifications to Community Sustainability Plan

1. Citation needed for quote in last paragraph on page 68:
“[What is a Circular Economy?](#),” U.S. Environmental Protection Agency.
2. On page 81, the 2018 Fact Sheet citation should be endnote 2 and the methodology note should be endnote 3.
3. Endnote 2 is the only place in the plan that defines how the municipal and citywide diversion rates will be calculated. The endnote needs to be clarified to serve that purpose. The proposed change also a) provides for organic diversion other than composting and b) removes a "waste" reference. Option C is the preferred option.

Option A

This same methodology will be used for calculating the municipal diversion rate ~~for municipal waste~~, but ~~composting and diversion of organic material and~~ brush and bulk ~~items~~ will be included in the citywide diversion rate.

without legislative edits:

This same methodology will be used for calculating the municipal diversion rate, but organic material and brush and bulk will be included in the citywide diversion rate.

Option B

This same methodology will be used for calculating the municipal diversion rate. On the other hand, organic material and brush and bulk will be included in the citywide diversion rate.

Option C

This same methodology will be used for calculating the municipal diversion rate. The citywide diversion rate will include organic material and brush and bulk.

During the March 19, 2024 Work Study, multiple council members requested that "waste" be replaced wherever possible. See numbers 4, 5, and 6.

4. For consistency with terms elsewhere in the section and removal of "waste," change:

page	from	to	notes
73	yard	landscaping debris	
74	yard waste	landscaping debris	see redline paragraph below
74	green (yard) waste	green waste (landscaping debris)	see redline paragraph below
75	yard waste	landscaping debris	

5. Places to remove "waste":

page

69	Waste Refuse is transported by the department either directly to the Salt River Landfill ...	
72	diversion indicator	delete "waste"; no replacement needed
72	diversion target (municipal)	delete "waste"; no replacement needed; repeat on pg 12
73	first sentence	delete "in the waste stream"; no replacement needed

73 A study from the State of Oregon looked at ways to prioritize prevention of **food-waste wasted food**, generating a helpful hierarchy ... (Figure 4).

[Note: The title of the hierarchy (figure 4) is "Wasted Food Hierarchy." Oregon has championed the term "wasted food" to replace "food waste."]

73 ... still important **waste material** management tools.

73 brush & bulk target change to one of these options and repeat on pg 12:

Achieve a diversion rate from ~~the~~ brush and bulk **waste-stream** of 50% ...

Achieve a **brush and bulk** diversion rate ~~from the brush and bulk waste-stream~~ of 50% ...

74 Single-family residents can dispose of **yard-waste landscaping debris**, including grass clippings, tree trimmings and other organic material, during their monthly brush and bulk pickup. Usually, this **waste debris** is mixed with other materials, either before pickup or in the city's collection vehicles. The city is currently exploring ways to separate brush from bulk **waste** as part of the transfer station expansion.

...

The Salt River Landfill maintains a separate green (~~yard~~) waste (**landscaping debris**) disposal area where loads with minimal non-organic contamination are diverted from the landfill. ~~For organic waste,~~ Contamination leads to increased costs or even entire loads being redirected back to the landfill.

6. Even after making the changes recommended above, there will remain dozens of references to "waste" – the most conspicuous of which is the section title. Here are several alternatives similar in length to Air Quality and Extreme Heat:

- | | |
|-------------------|----------------------|
| Beyond Waste | Materials Management |
| Waste Not | Waste Diversion |
| Resource Recovery | Waste to Resource |

7. It must be made clear that the reduction in the first target on page 71 is a reduction in the black container only. This is one way to do so:

Indicator: Pounds of landfill refuse per single-family household (**black container**)

8. WST 3.1 Establish a green or organic waste drop-off program.

What do we intend to establish a drop-off program for? "Organic waste" is now defined in the Glossary. What does "green" mean? If the intention is a drop-off program for any and all organic (biodegradable) material, delete "green or." Otherwise, clarify what the alternative "green" is. For example, is it green landscaping debris?

9. page 12 Reduce landfill refuse citywide by 90% by 2040
 page 71 Reduce landfill refuse collected citywide by 90% by 2040

Missing word on page 12 or an unnecessary word on page 71.

ATTACHMENT 1: Recommended Clarifications to Community Sustainability Plan

pg black and red = current text and redlined changes
blue = reasons, explanation, sources

5 The Scottsdale Water Campus ... permitted as a pilot program for ~~advanced water purification~~
~~Advanced Recycled Purified Water.~~

To be consistent with current terminology and the changes made on pages 21, 60 and 110.

6 Extreme heat acts as a threat multiplier

Missing word also needed on page 23.

6 The cumulative effect of multiple days of extreme daytime highs ~~also means that makes~~ nighttime
temperatures ~~were~~ uncomfortably high, combining to create a deadly weather phenomenon.

Correction mimics the correction already made on pages 14, 24, and 94 (with or without "also").

6 Figure 1 is not cited to anywhere in the text, e.g., in the air quality paragraph on page 7.

8 The indicators and baseline data for each priority show "where we are" and are tied to targets that ~~are~~
~~reflect~~ "where we want to be."

Same change applies to page 32.

11 Staff administers several residential and commercial incentive rebate programs, offers residential
outdoor efficiency checks, ~~and~~ a commercial audit program, manages ordinance compliance ...

Missing word. Correction mimics the correction already made on page 56.

12 Citation needed on page 17 for the quote in the last sentence of the paragraph on page 12.
Ditto with the same quote on page 68.
Citation: "[What is a Circular Economy?](#)" U.S. Environmental Protection Agency.

12 12 Reduce landfill refuse citywide by 90% by 2040
71 Reduce landfill refuse collected citywide by 90% by 2040

Missing word on page 12 or an unnecessary word on page 71. Coordinate with page 71.

13 ~~Particulate matter, classified as small (PM 2.5) or large (PM 10), usually occurs as blowing dust or
smoke from fires or fireworks.~~ REPLACE WITH:

Most fine particulates (PM-2.5) form when pollutant gases emitted by gasoline and diesel engines, power plants and industrial processes react in the atmosphere. Fine particulates are also emitted directly from vehicles, smokestacks, fires and fireworks. Coarse particles (PM-10) sources include road dust kicked up by traffic, construction and demolition, blowing dust, industrial processes, agricultural operations and biomass burning.

The characterization that PM "usually occurs as blowing dust or smoke from fires or fireworks" ignores the Valley's very real, ongoing sources of particulate pollution. In doing so, it feeds the narrative that a) 'nothing can be done' because we can't control dust storms, b) unhealthy air occurs only when certain limited events happen (e.g., haboobs, holidays), and c) "no-burn days" and discouraging fireworks will solve the problem. That message minimizes the problem and stifles any meaningful effort toward improvement.

American Lung Association's 2024 "State of the Air" report ranks Metro Phoenix 9th worst among U.S. cities for year-round (annual) PM-2.5 pollution. Such a ranking in that category does not result from occasional events like Christmas Day fireplace use and dust storms.

sources for replacement language:

www.epa.gov/system/files/documents/2024-02/pm-naaqs-overview.pdf

www.epa.gov/pm-pollution/particulate-matter-pm-basics

www.epa.gov/no2-pollution/basic-information-about-no2


www.epa.gov/so2-pollution/sulfur-dioxide-basics

13

Ground-level ozone is created when nitrogen oxides, volatile organic compounds, and sunlight react; ~~making ozone primarily a summer issue~~. Because of sunlight's role in ozone formation, ozone levels exceed federal health standards more often in spring through fall when longer days provide more hours of sunlight.

Ozone exceedances in the Valley quite commonly occur in April and September and even occur in March and October. This April, we had one ozone exceedance and three ozone High Pollution Advisories (HPAs). In May, we had seven ozone exceedances and seven ozone HPAs. In September, we had seven ozone exceedances and three ozone HPAs. In fact, we had more ozone exceedances in May and September than in June. From October 1 to 9, we had three ozone exceedances and four ozone HPAs.

13

13 Increase  number of publicly available charging ports four-fold by 2027 and ten-fold by 2030 (from 2023 levels)

87 Increase the number of publicly available charging ports four-fold by 2027 and ten-fold by 2030 (from 2023 levels)

Coordinate pages 13 and 87.

14

Increased heat results in added energy use and higher air conditioning costs.

Missing word as already corrected on page 94.

15

1. Produce an annual progress report ~~that includes city achievements and data~~.
2. Formally update the plan every three years.
3. Track spending and savings.

On page 35, three steps are described; all three should be listed here. Regarding #1: either make it general (by deleting the stricken text) or include all aspects, not just "city [municipal] achievements and data."

~~Air Quality Index (AQI) – The U.S. AQI is EPA's index for reporting air quality. For each of six pollutants an AQI value of 100 generally corresponds to an ambient air concentration that equals the level of the short-term national ambient air quality standard for protection of public health.~~

Replace current definition with:

Air Quality Index (AQI) - The AQI is a scale developed by EPA to report air quality to the public as it relates to health. The higher the AQI value, the greater the level of air pollution and the greater the health risk. AQI values are calculated by converting measured pollutant concentrations for each of the major air pollutants regulated by the Clean Air Act to a uniform index based on their health effects. An AQI value of 50 or less is considered good air quality with little or no potential to affect public health. An AQI value above 100 means a pollutant level is higher than the national health standard (known as the short-term National Ambient Air Quality Standard) and air quality is considered unhealthy.

Note: The parenthetical in the last sentence could be deleted. However, see reason #3.

Reasons:

1. The AQI was developed to report air quality a) **to the public** and b) **as it relates to health**. The six levels of the index (not mentioned here for brevity) are distinguished by **health effects**. It's all about public health! That doesn't come through in the current definition.
2. What the current definition says about an AQI value of 100 is oversimplified to the point of being misleading. AQI values between 51 and 100 are Moderate. AQI values ≥ 101 are unhealthy.
3. The term "National Ambient Air Quality Standard" is used three times on page 84 and is not defined in the Glossary.
4. The proposed definition is a more informative and understandable explanation.

~~Green Building – The practice of increasing ... In this plan, green buildings are defined as those that comply with IgCC, LEED, Scottsdale Green Building Program or **Scottsdale Green Housing Rehabilitation Program (Green Rehab) guidelines**.~~

Reasons:

1. Because this definition literally defines what qualifies as a "green building" for the green building target (page 47), it is important that the "Scottsdale Green Housing Rehabilitation Program" be accurately described.
2. The Scottsdale Green Housing Rehabilitation Program is a separate program from the Scottsdale Green Building Program – run by a different city department and different city personnel.
3. The Scottsdale Green Housing Rehabilitation Program is not referred to as "Green Rehab" in the program's two documents (Guidelines and Standards) or on its webpage. That term is only used in this plan.
4. If "guidelines" is intended to refer to all four qualifiers, it should be deleted as the qualifiers include a code, a rating system, a checklist and a standard. If "guidelines" is intended to refer to the Scottsdale Green Housing Rehabilitation Program, it should either be deleted or capitalized and changed to "Guidelines and Standards" (the *two* documents that comprise the Program requirements).

Megawatt hour (Wh) – A measure of energy consumption equal to using 1,000,000 watts for one hour (use).

Reason: missing word

Particulate Air Pollution - A mixture of ~~large~~ coarse and fine solid particles and liquid droplets ~~found~~ suspended in the air. Coarse particles (known as PM-10) range from greater than 2.5 to 10 micrometers (μm) in diameter. Fine particles (known as PM-2.5) are 2.5 μm and smaller in diameter. Once inhaled, these particles can lodge deep in the lungs and may enter the bloodstream, causing serious health effects. Particle size is directly linked to their potential to cause health problems, with PM-2.5 posing the greatest risk. Primary particles are emitted directly from a source, such as construction sites, unpaved roads, smokestacks or fires. Secondary particles form in atmospheric reactions involving sulfur dioxides, nitrogen oxides and other chemicals emitted from diesel- and gasoline-powered vehicles and equipment, power plants and industrial facilities. Most PM-2.5 pollution is secondary particles. Particulate pollution is the main cause of the Valley's "brown cloud."

Reasons:

1. PM-2.5 and PM-10 are mentioned several times in the plan and should be included in the definition.
2. PM-2.5 and PM-10 are two of Scottsdale's three major air pollutants, and as such, warrant a better explanation.
3. PM-2.5 and PM-10 are very different, and therefore, should not be lumped together under the very general term "particulate" without differentiation. The proposed definition provides that differentiation.
4. People can relate to the "brown cloud." PM is visible air pollution. Ozone is invisible.

Sources:

www.epa.gov/pmcourse/what-particle-pollution

www.epa.gov/pm-pollution/particulate-matter-pm-basics

pg black and red = current text and redlined changes
 blue = reasons, explanation, sources

23

Extreme heat acts ~~as~~ a threat multiplier

Missing word also needed on page 6.

27

Another study in the journal Science evaluated the economy-wide impacts of different future warming scenarios and found that Maricopa County would see a 5-10% drop in gross domestic product by the end of the century (Figure 4).¹³ ~~THE SAME STUDY ESTIMATES MARICOPA COUNTY WILL SEE A 15-20% INCREASE IN ENERGY COSTS.~~ The Atlantic Council similarly examined broad economic impacts and calculated that losses from decreased labor productivity would exceed \$5 million per year by 2050 in Maricopa County and that occupational injuries due to human heat stress could be as high as 20,000 per year.¹⁴ ~~THE SAME STUDY ESTIMATES MARICOPA COUNTY WILL SEE A 15-20% INCREASE IN ENERGY COSTS.~~

"The same study" is the study published in Science (citation 13), not the Atlantic Council report (citation 14).

32

The indicators and baseline data for each priority show "where we are" and are tied to targets that ~~are~~ reflect "where we want to be."

Same change applies to page 8.

35

1. Produce an annual report that includes updates on implementation of actions, progress toward ~~sustainability achieving~~ targets, ~~including indicator and target~~ data, ~~on the indicators~~ and a section specifically chronicling municipal achievements and data. The reports will be presented annually to City Council and the Scottsdale Environmental Advisory Commission and will discuss possible amendments to the plan.

Annual reports must include data on targets as well (not just indicators).

38

8. "Yale Climate Opinion Maps ~~2021~~ 2023 ..."

The citation was partially corrected in the last draft, but the year was missed.

page 47

The number of green buildings – those that comply with IgCC, LEED, Scottsdale Green Building Program or ~~Green Rehab guidelines~~ **Scottsdale Green Housing Rehabilitation Program** – has been steadily increasing and is expected to rise more quickly with the adoption of mandatory green construction codes.

Reasons:

1. Because this sentence lists what qualifies as a "green building" for the green building target, it is important that the "Scottsdale Green Housing Rehabilitation Program" be accurately labeled.
2. The Scottsdale Green Housing Rehabilitation Program is a separate program from the Scottsdale Green Building Program – run by a different city department and different city personnel.
3. The Scottsdale Green Housing Rehabilitation Program is not referred to as "Green Rehab" in the program's two documents (Guidelines and Standards) or on its webpage. That term is only used in this plan.
4. If "guidelines" is intended to refer to all four qualifiers, it should be deleted as the qualifiers include a code, a rating system, a checklist and a standard. If "guidelines" is intended to refer to the Scottsdale Green Housing Rehabilitation Program, it should either be deleted or capitalized and changed to "Guidelines and Standards" (the *two* documents that comprise the Program requirements).

ATTACHMENT 1: Recommended Clarifications to Community Sustainability Plan

additional General Plan references:

- add S 8 (hazardous material) to Waste
- add EP 8 to Heat + Water + Waste
- add CONSV 1 to Heat + Water + Waste

Timeline | Key Dates

2024

August 28 – SEAC

August 29 – Website changes due to city IT

September 9 (tentative) – Awards program launched

September 18 – SEAC

October 16 – SEAC

October 31 – Phase 1 applications deadline for applicants

November 1/2 – Phase 1 applications shared with SEAC for scoring

November 18 – SEAC scoring on Phase 1 applications deadline

November 19 – Compilation of SEAC scoring on Phase 1 applications shared with SEAC

November 20 – SEAC

December 11 – SEAC; SEAC decision on applicants proceeding to Phase 2

December 12 – Phase 2 applicants notified/questions sent

2025

January 15 – SEAC (tentative)

January 31 – Phase 2 documents deadline for applicants

February 7 – Phase 2 documents shared with SEAC

February 19 – SEAC (tentative); Initial SEAC review of Phase 2 documents

March 19 – SEAC (tentative); Final SEAC decision on awardees

April 16 – SEAC (tentative)

April 19 – Earth Fest announcement of awardees (tentative)

Application Form | Phase 2

Please limit your responses to all questions to 5 pages and 3 attachments.

1. Describe the methods used to measure and verify the environmental impact (can include third-party audits or certifications).and provide any relevant quantitative data on the environmental impact of the project (e.g., energy savings, water conserved, waste reduced, improvements in air quality)
2. Describe how your sustainability initiatives are innovative
3. How does the project integrate into a long-term sustainability strategy, and what are the ongoing efforts to maintain and enhance its sustainability impact
4. Provide any additional information you think is helpful or relevant for the reviewing committee