

DOE Idling Survey Summary Report

Prepared for:
Washington State Department of Ecology

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Introduction

The Washington State Department of Ecology contracted with PRR, Inc. to design, implement, and analyze a statistically valid telephone survey regarding vehicle idling among parents of school-aged children. The purpose of the survey was to assess parent:

- Concerns about air quality
- Drop-off and pick-up behavior at school and school bus stops
- Vehicle idling behavior
- Knowledge of impact of vehicle idling
- Motivators to change vehicle idling behavior
- Information needs regarding vehicle idling

The expectation was that the survey results would provide a better understanding of parent's knowledge, attitudes and behaviors regarding vehicle idling so that communication strategies would be well informed.

Sample

A disproportionate stratified random sample of Washington State parents of school-aged children who transport their children to or from school or school bus stops was surveyed from June 9, 2003 to June 13, 2003. In each case we spoke with the person in the household that did the majority of the child transporting to and/or from school. The sample was stratified relative to counties on the east and west sides of the state. Two-hundred parents were surveyed from each side of the state. A disproportionate sample was used to generate sufficient cases for the eastside of the state (n=200) relative to the west side of the state (n=203). The total sample size of 403 has an overall margin of error ± 5 percent. The response rate for the survey (based on 1,726 contacts) was 23 percent.

Data Processing and Analysis

Data processing consisted of coding and entering quantitative and qualitative responses with the use of a CATI (Computer Assisted Telephone Interview) system; performing response range and logic checks on quantitative variables in order to check for miscoded variables, and cleaning the final data file.

Data analysis was conducted using SPSS (Statistical Package for the Social Sciences) and involved the calculation of descriptive statistics (such as frequencies and percentages), as well as exploratory techniques that investigate relationships between and among variables (such as cross-tabulation and tests of statistical significance such Cramer's V and Kendall's tau-c¹). Statistically significant findings are discussed in the body of the report.

¹ Cramer's V is a measure of association that ranges between 0 and 1 that is used to measure the strength of the relationship between nominal variables—those variables that have no intrinsic order. The closer to 1, the stronger the relationship. Similarly, Kendall's tau-c is a measure of association with values that range between -1 and +1 and are used to measure the strength *and* direction of the relationship between two ordinal variables.

Throughout the report results are presented in charts and tables that do *not* separate the results by east and west side of the State. This is done because the statistical analysis showed that there were no statistically significant relationships between side of state with any of the other variables (with the exception of five relationships which are specifically noted in the report). Consequently, the data analysis has been weighted to adjust for the over-sampling of parents from the eastside of the state².

² Weighting was conducted to adjust the data to reflect the fact that 77% of all parents with school-aged children live on the west side of the state and 23% live on the east side of the state.

Sample Demographics

Number of school-aged children

	Frequency	Percent
1	124	30.9
2	187	46.3
3	71	17.6
4	14	3.6
5	3	.8
6	3	.7
Total	403	100.0

Number of vehicles owned

	Frequency	Percent
1	33	8.2
2	188	47.2
3	116	29.1
4	32	8.1
5	14	3.5
6	8	1.9
7	4	.9
8	2	.4
10	3	.8
Total	399	100.0

Number of vehicles 10 years old or older

	Frequency	Percent
0	148	37.2
1	128	32.2
2	82	20.5
3	23	5.8
4	9	2.2
5	2	.5
6	3	.8
7	2	.4
10	2	.4
Total	398	100.0

Number of vehicles that use diesel fuel

	Frequency	Percent
0	363	90.7
1	32	8.1
2	2	.6
3	0	.1
4	2	.5
Total	400	100.0

Has air quality from any source affected your health or the health of anyone in your household?

	Frequency	Percent
No	300	74.3
Yes	85	21.1
Don't know	18	4.5
Total	403	100.0

Type of residential area

	Frequency	Percent
Urban	87	21.5
Suburban	161	39.9
Rural	145	35.9
Don't know	11	2.6
Total	403	100.0

Age

	Frequency	Percent
18 - 24	6	1.6
25 - 34	41	10.1
35 - 44	195	48.3
45 - 54	132	32.8
55 - 64	15	3.8
65 - 74	6	1.4
Refused	9	2.1
Total	403	100.0

Income

	Frequency	Percent
Under \$20,000	5	1.3
\$20,000 to less than \$35,000	33	8.2
\$35,000 to less than \$50,000	60	15.0
\$50,000 to less than \$75,000	86	21.4
\$75,000 to less than \$100,000	84	20.8
\$100,000 and above	63	15.7
Refused	70	17.4
Total	403	100.0

Gender

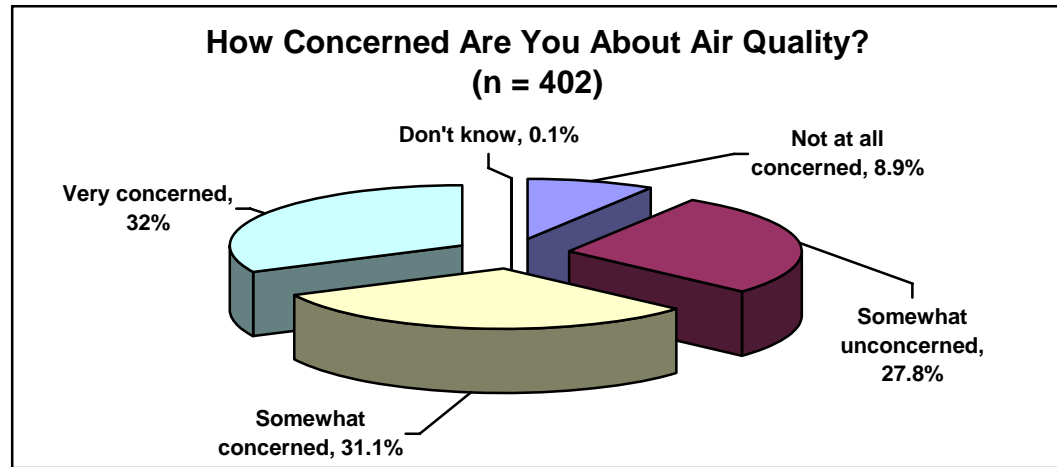
	Frequency	Percent
Male	114	28.2
Female	290	71.8
Total	403	100.0

Results

A. Attitudes About Air Quality

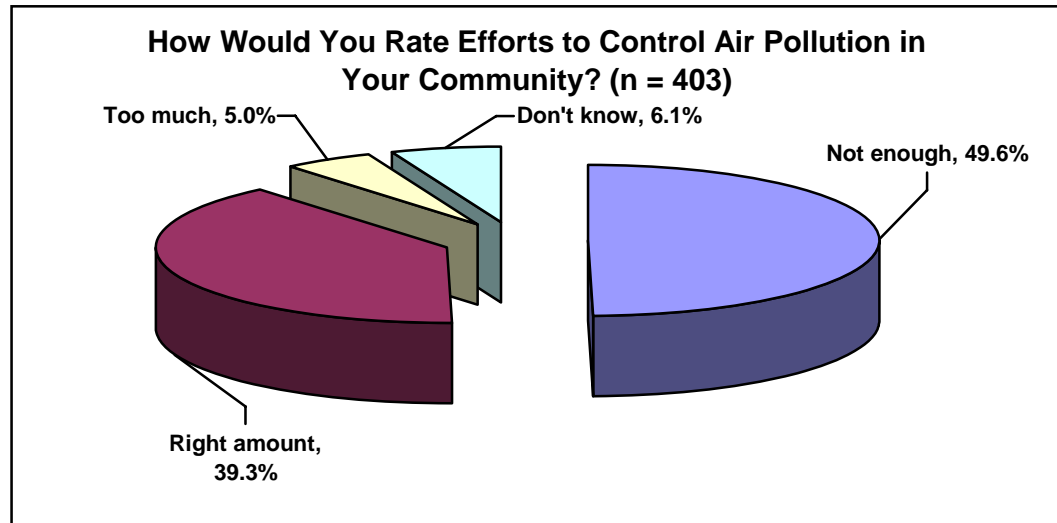
Q1 – How Concerned Are You About Air Quality?

Almost two-thirds (63.1%) of parents report being concerned about air quality, with one-third (32%) being *very concerned*.



Q21 – How would you rate the efforts to control air pollution in your community?

Although almost forty percent (39.3%) believe that the *right amount* of effort is going toward controlling air pollution in their communities. However, half (49.6%) of all respondents believe *not enough* is being done.



Child Transport Behavior

Q2 – Where are children being transported to and from?

Most parents are dropping-off or picking-up their children at the school location and not at school bus stops.

Transport Destination	Percent (multiple responses allowed)
Drop-off at school or school programs	87.6%
Drop-off at school bus stop	17.3%
Pick-up at school or school programs	82.9%
Pick-up at school bus stop	17%

Q3 – How many days per week are children transported?

Most parents (61.2%) who transport their children to and/or from school do so five days a week.

Days Per Week Transport Children	Percent (n=403)
Less than 1 day	4%
1 day	7.2%
2 days	10%
3 days	10%
4 days	6.2%
5 days	61.2%
More than 5 days	.7%
Don't know	.8%

Q4 –What are the school levels of children transported by parents?

Parents are most likely to transport children at the *elementary school* level (60.4%), but about a third of parents transport children at the *middle* (31%) and *high school* (35.7%) levels.

School Level	Percent (<i>multiple responses allowed</i>)
Pre-school	8%
Elementary school	60.4%
Middle school	31%
High school	35.7%

B. Vehicle Idling Behavior

Q5 – When do you usually idle your vehicle?

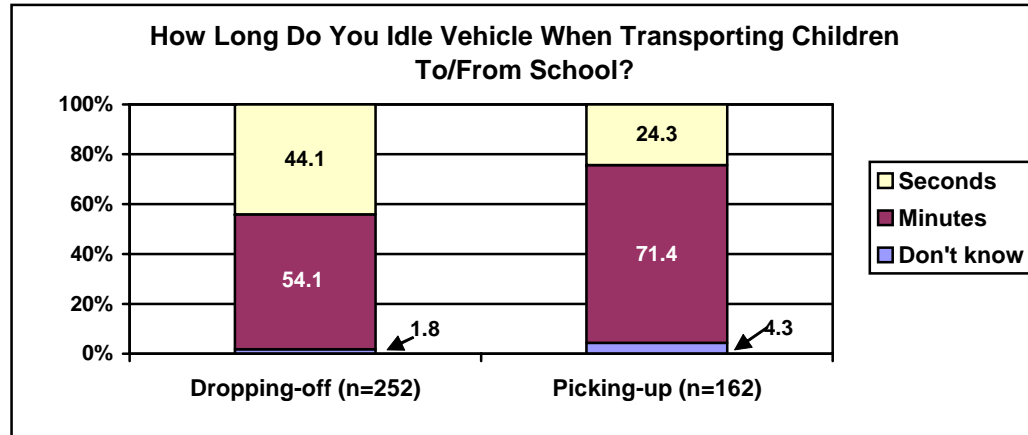
Almost half (46%) of all parents reported that they *do not idle* their vehicles. A quarter (24.7%) report idling their vehicles when *dropping-off or picking up their children at school*. Other frequently mentioned reasons for idling their vehicles included *warming up the engine* (13.2%) and *going through drive throughs* (5.8%).

	(multiple responses allowed)
Do not idle my vehicle	46.0%
When dropping-off or picking-up my kids	24.7%
When warming up vehicle engine	13.2%
Going through drive-throughs	5.8%
Other	5.0%
When it is cold	4.7%
Don't know	4.1%
In heavy traffic	1.8%
Waiting to get on/off the ferry	1.1%
At road construction sites	1.0%
Short waits (get mail, paper, run into store)	1.0%
To defrost the windows	0.5%
When it's hot	0.3%
To run the wipers or radio while waiting	0.1%

When Do You Usually Idle Your Vehicle? Percent

Q6 & Q7 - How long do you idle your vehicle when dropping-off or picking-up children at school?

Parents who do idle their vehicles when transporting their children to school are likely to idle their vehicles for a longer period of time when *picking-up* their children than when *dropping them off*. Half of the parents who idle their vehicles report doing so for about one minute when *dropping-off* their children. However, when *picking-up* their children, only about a third (32%) idle their vehicles for one minute and almost a quarter (23.6%) report idling for five minutes. The average length of time for idling their vehicle when *dropping-off* their children is 2.25 minutes, but rises to 3 minutes when *picking-up* their children.



Minutes Idling When Dropping-Off	Percent (n=140)
1	49.7%
2	21.5%
3	11.1%
4	1.1%
5	13.9%
7	1.4%
10	1.3%

Minutes Idling When Picking-Up	Percent (n=119)
1	32%
2	22.7%
3	15.6%
4	1.7%
5	23.6%
7	.4%
10	3.2%
15	.4%
20	.4%

Q8 – Why do you idle your vehicle when dropping-off or picking-up your children at school?

The largest percentage of parents who idle their vehicles when transporting their children to/from school report they do so because they *don't have to wait very long* (40.1%). Another seventeen percent state that they idle their vehicle because they *don't want to damage the engine or starter by restarting the engine*. Parents also report that they idle their vehicle because *the traffic moves, but slowly* (13.7%).

<i>Off or Picking-Up Children at School?</i>	(multiple responses allowed)
Don't have to wait very long	40.1%
Don't want to restart engine (bad for engine or starter)	16.9%
We do move – just slowly	13.7%
Let children in and out of car	13.3%
Keep interior of car warm	5.1%
Don't know	4.2%
Other	3.8%
Waiting for traffic to clear	2.5%
No parking zone/not enough parking spaces	2.2%
Use radio while waiting	1.6%
Keep interior of car cool	1.2%
Use windshield wipers while waiting	0.2%

Why Do You Usually Idle Your Vehicle When Dropping Off/Picking Up Children?

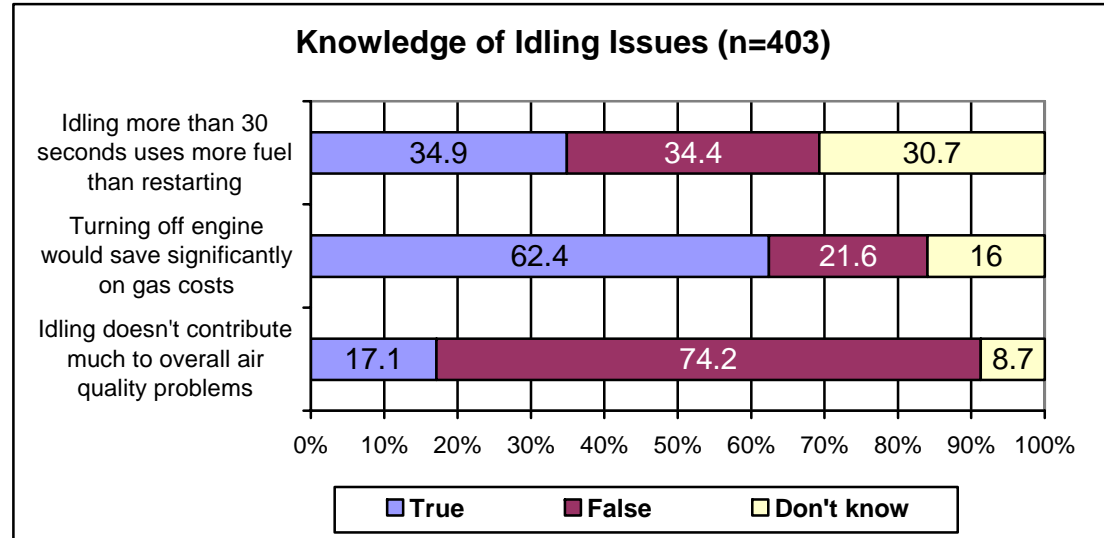
C. Knowledge of Idling Issues

Q9, Q10 & Q11 – Knowledge of Idling Issues

There is general misunderstanding of how long one can idle their vehicle before shutting the car off and restarting it would be more fuel efficient. About a third (34.4%) believe that shutting off and restarting uses more fuel than letting the car continue to idle. Almost another third (30.7%) do not know if it is better to shut the car off and restart or to let it continue to idle.

About two-thirds (62.4%) understand that turning the engine off will save significantly on fuel costs, although more than a fifth (21.6%) don't believe this is true.

Most (74.2%) understand that idling does contribute significantly to overall air quality problems.



D. Motivators to Change Idling Behavior

Q12 – How much would these motivate you to not idle your vehicle when dropping-off or picking-up your children at school?

Parents seem most motivated by messages that refer to the *health of their children*, as well as messages that refer to *protecting the environment and preserving air for future generations*.

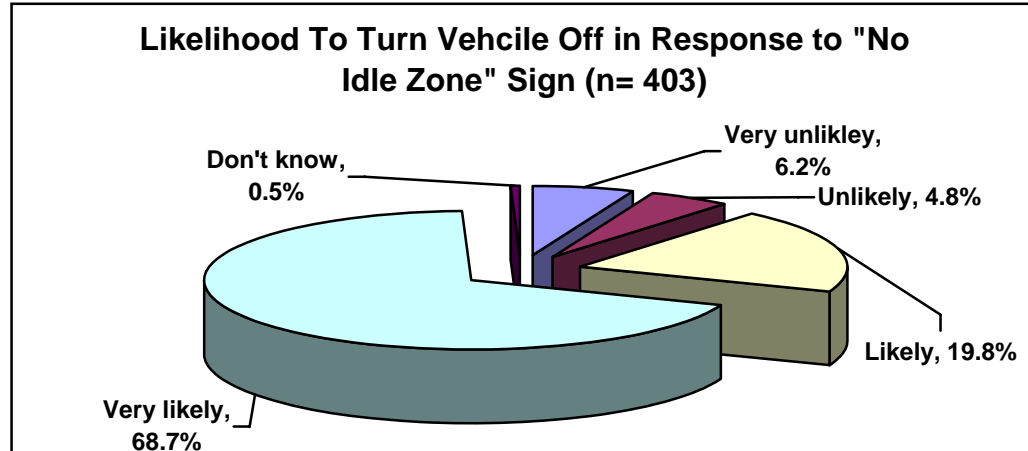
Messages that seem to be less motivating refer to not idling in order to *save money, improve fuel consumption, or extend the life of their car*.

<i>Percent Rated as "Very Motivating" in Getting Me to Stop Idling When Transporting Children To/From School</i>	Percent (n=403)
Not idling will ensure your child is healthier	66.3%
Idling at school is extremely dangerous to your child's health	60%
Not idling will help protect the environment	59.4%
Not idling will preserve our air for future generations	58.2%
Child asthma is on the rise and there is a direct link to air quality	57.4%
Not idling will help you breathe easier	55.4%
Not idling will reduce emissions	50.2%
Not idling will save money	48.7%
Not idling will improve fuel consumption	45%
One car, in one month can put out three pounds of emissions just dropping-off a child at school	41.8%
Not idling will extend the life of your car	39%

E. Support for and Likelihood to Change Idling Behavior

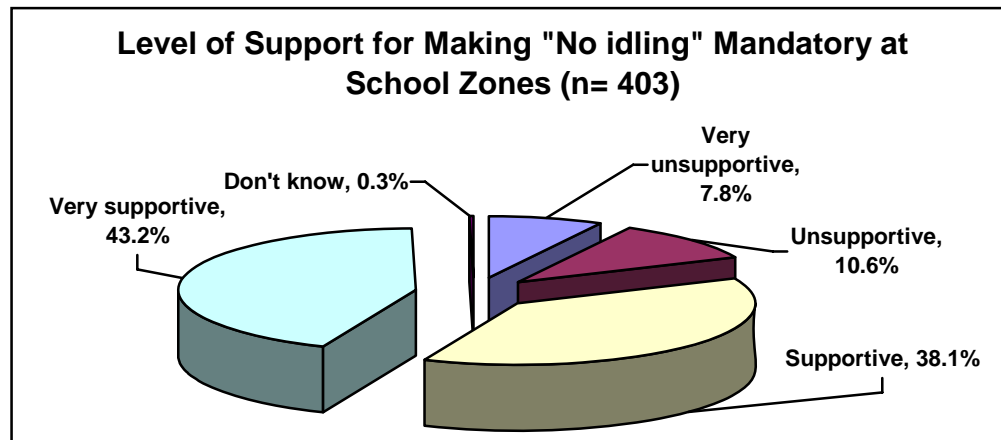
Q13 – Likelihood to turn vehicle off if you saw a “No Idle Zone” sign at school zone.

The vast majority (88.5%) of parents report that they would turn off their vehicle in response to a “No Idle Zone” sign at a school zone. In fact, more than two-thirds (68.7%) state that they are *very likely* to do so.



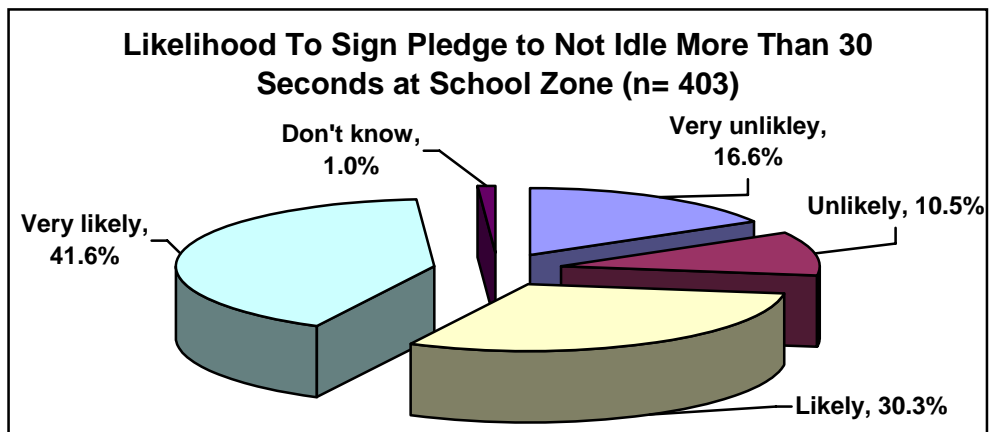
Q14 – How supportive would you be of schools making it mandatory to not idle your vehicle?

Most parents (81.3%) are in favor of making it mandatory to not idle vehicles in school zones. Almost half (43.2%) are *very supportive* of making this mandatory.



Q15 – Likelihood to sign a pledge promising to not idle vehicle for more than 30 seconds at school zone.

When it comes to actually signing a pledge to not idle more than 30 seconds in a school zone parental support is fairly strong (71.9%). Being *very likely* to sign such a pledge was mentioned by slightly more than two-fifths (41.6%) of parents.



F. Influence of Various Information Sources

Q16 – How influential would these information sources be in convincing you to not idle your vehicle?

When it comes to convincing parents that they should not idle their vehicles, *doctors* and school officials rate the highest. Half (51.5%) of all parents say that doctors are very influential, followed by *school officials* (33.7%) and the *State Department of Ecology* (27.1%). The *media* was rated as the least influential.

Percent Rated as "Very Influential" in Convincing Me To Not Idle My Vehicle	Percent (n=403)
Doctors (pediatricians)	51.5%
School officials	33.7%
State Department of Ecology	27.1%
Air quality organization	26%
Federal government	19.2%
Local government	17.7%
Environmental group such as the Sierra Club	16.3%
Media	11.5%

Q16a – Other sources influential in convincing you to not idle your vehicle?

When asked what other sources of information would be influential, about 22% of the parents responded. *Children, family, and friends* were mentioned by about ten percent of these parents. There is also mention of *scientific magazines* (9.8%) and *scientific research* (7.2%), reflecting a desire for “factual” information regarding the idling issue.

<i>Other Sources Influential In Convincing Me To Not Idle My Vehicle</i>	Percent (n=88)
Other (not specified)	20.6%
Local authorities/law enforcement/DOT	12.5%
Children	10.9%
Family/Friends	10.4%
Health/Scientific magazines	9.8%
TV news/commercials/special programs	8.5%
Scientific research/surveys	7.2%
Signs/billboards	5.7%
Community groups/PTA/churches/school board/schools	4.9%
Health associations/American Lung/ Nurse Associations	3.6%
Websites/online	3%
Radio	3%

Statistically Significant Cross-tabulation Results

The following information presents those relationships that are statistically significant. However, just because a relationship is statistically significant does not necessarily mean that it is something that should be acted on in a communications campaign. What is equally important is how strong the statistically significant relationship is. The significance tests used in this analysis can produce coefficients ranging from 0 to +1 (for the Cramer's V test) and -1 to +1 (for the Kendall's Tau C test). The higher the negative or positive coefficient, the stronger the relationship. In the social sciences it is unusual to get coefficients higher than .5 (either negative or positive). Therefore, coefficients between .1 and .2 are considered to be weak to somewhat moderate in strength. All of the coefficients for the relationships that follow are at least .1 but less than .2. Bottom line – there are statistically significant relationships but they are not especially strong.

A. Where People Live

- Western WA more motivated by “not idling saving money” message
- Western WA more motivated by “not idling help breathe easier” message
- Western WA more motivated by “not idling will protect the environment” message
- Western WA more supportive of making not idling mandatory at schools
- Western WA less likely to sign a pledge to not idle at schools

B. Concern About Air Quality

- The older people are, the more concerned they are
- Females are more concerned than males
- Families with health problems related to air quality issues are more concerned
- Those in urban areas are more concerned

C. Length of Time Idling at School

- Females idle longer than males
- Those with history of family health problems related to air quality idle longer
- Parents idle longer when picking up kids compared to when dropping them off

D. Knowledge/Beliefs

Idling engine more than 30 seconds uses more fuel than restarting it

- Younger they are, the less likely to believe this
- The lower the income, the less likely to believe this
- Males are less likely to believe this than females

Turning off the engine would save significantly on gas costs

- Females are more likely to think this is false or to not know compared to males

Vehicle idling doesn't contribute much to overall air quality problems

- Older they are, the more likely to believe this
- Males are more likely to believe this than females

E. Motivating Messages to Stop Idling

Not idling will preserve air for future generations

- Females more motivated by this than males
- Families with health problems related to air quality issues more motivated by this
- Those in urban settings more motivated by this

Not idling will improve fuel consumption

- Females more motivated by this than males

Not idling will save money

- Older they are, the more motivated they are by this

Not idling will reduce emissions

- Older they are, the more motivated they are by this
- Females are more motivated by this than males
- Families with health problems related to air quality issues more motivated by this

Not idling will help you breathe easier

- Older they are, the more motivated by this
- Females are more motivated by this
- Families with health problems related to air quality issues more motivated by this

Not idling will ensure your child is healthier

- Younger they are, the more motivated by this
- Females are more motivated by this than males

Idling at school is extremely dangerous to your child's health

- Females more motivated by this than males

One car, in one month can put out three pounds of emissions just dropping off a child at school

- Families with health problems related to air quality issues more motivated by this

Child asthma is on the rise and there is a direct link to air quality

- Families with health problems related to air quality issues more motivated by this

Not idling will help protect the environment

- Females more motivated by this than males

Not idling will extend the life of your car

- Females more motivated by this than males

F. Behavior Change

If you saw a sign at the school drop off zone or school bus stop that said 'NO IDLE ZONE' how likely would you be to turn off your vehicle?

- Females more likely to comply than males

How supportive would you be of your schools making it mandatory to NOT idle your vehicle?

- Females more supportive than males
- Families with health problems related to air quality issues more likely to support this

How likely would you be to sign a pledge that said you promise not to idle your car for more than 30 seconds at a school zone or school bus stop?

- Females more likely to sign than males

G. Influence of Sources

Media

- Higher the income, the more influenced
- Females more influenced than males
- Families with health problems related to air quality issues more influenced by this

School officials

- Females more influenced than males

Department of Ecology

- Females more influenced than males
- Families with health problems related to air quality issues more influenced by this

Doctors (pediatricians)

- Females more influenced than males
- Families with health problems related to air quality issues more influenced by this

Air quality organization

- Females more influenced than males
- Families with health problems related to air quality issues more influenced by this

Environmental groups like Sierra Club

- Females more influenced than males

Federal government

- Females more influenced than males

Local government

- Females more influenced than males

H. Enough Being Done About Air Quality?

- Those in urban areas more likely to think not enough is being done
- Families with health problems related to air quality issues more likely to think not enough being done

Appendix A - Telephone Survey

DOE Telephone Survey Parents Who Drop-Off/Pick-Up Kids at School

Hello. I'm calling on behalf of the Washington State Department of Ecology. I want to assure you this is not a sales call. We're surveying WA State parents today in regard to air quality issues. This survey will take no more than 7 minutes of your time.

- Are there school-aged children in your household? By school-age we mean children 4 to 18 years of age.

- No – terminate (Thank them for their time and tell them we are just surveying parents who have school-aged children)
- Yes – how many? (continue)

- Does someone in your household drop-off or pick-up the children at school (school activities) or at the school bus stop?

- No – terminate (Thank them for their time and tell them we are just surveying parents who drop-off or pick-up their children at school or bus stop)
- Yes – continue

May I please speak with the person who does most of the drop-off and pick-up driving?

Is that person you?

- If yes – Will you be able to take our survey?
 - If yes, skip to Q1 below.
- If no -- Is that person available?
 - If yes, when they come to the phone -- Hello. I'm calling on behalf of the Washington State Department of Ecology . I want to assure you this is not a sales call. We're surveying WA State parents regarding air quality issues. This survey will take no more than 7 minutes of your time. Will you be able to take our survey?
 - If yes, skip to Q1 below.
 - If no, may we call back at another time? (If yes, get best call back day and time: _____ . If No –thank them for their time.)
 - If no, may we call back at another time? (If yes, get name and best call back day and time: _____ . If No –thank them for their time.)

Thanks for agreeing to participate in our survey. Your answers will be kept strictly confidential.

1. On a scale of 1 to 4, with 1 being not at all concerned and 4 being very concerned, how concerned are you about air quality?

Child Drop-Off/Pick-Up Behavior

2. Do you (READ, multiple responses allowed):
 - Drop-off your children at school and/or school programs
 - Drop-off your children at school bus stop
 - Pick-up your children at school and/or school programs
 - Pick-up your children at school bus stop

3. On average, how many days a week do you drop-off or pick-up your children at school (including ALL school activities) or the school bus stop?
 - Less than 1 day a week
 - 1 day a week
 - 2 days a week
 - 3 days a week
 - 4 days a week
 - 5 days a week
 - More than 5 days a week
 - Don't know

4. How many of your school-aged children do you transport to or from school, school activities or to the school bus stop? (FOR EACH CHILD INDICATE GRADE THEY ARE IN:
 - Pre-school
 - Elementary school
 - Middle school
 - High school

Idling Behavior

5. Sometimes people idle their vehicles in certain situations. When do you usually idle your vehicle? (DO NOT READ)
 - when warming up vehicle engine
 - when it is cold
 - to defrost the windows
 - to run the wipers or radio while waiting
 - when picking-up or dropping-off my kids
 - at the cash machine
 - going through drive-throughs
 - park and rides
 - at the dry cleaner's
 - picking up pizza
 - waiting to get on/off the ferry
 - at draw bridges
 - at road construction sites
 - other (specify)
 - Do not idle my vehicle
 - don't know

6. About how long do you keep your vehicle idling when **dropping-off** your children at school or the school bus stop? ____

7. About how long do you keep your vehicle idling when **picking-up** your children at school or the school bus stop? ____

ONLY ASK Q8 OF THOSE WHO DO NOT INDICATE ZERO MINUTES ON Q6 AND Q7

8. Why do you idle your vehicle when dropping-off or picking-up your children at school or the school bus stop? (DO NOT READ)
- Keep interior of car warm
 - Keep interior of car cool
 - Use windshield wipers while waiting
 - Use radio while waiting
 - We do move - just slowly
 - Don't want to stop and restart engine – bad for engine or starter motor
 - Don't have to wait very long
 - other (specify)
 - don't know

Idling Awareness

I'm now going to read a series of statements to you. Please answer True, False or Don't Know for each statement.

9. Idling an engine more than 30 seconds uses more fuel than restarting it
- T
 - F
 - Don't know
10. Turning off the engine would save significantly on gas costs
- T
 - F
 - Don't know
11. Vehicle idling doesn't contribute much to overall air quality problems
- T
 - F
 - Don't know

Motivators to Behavior Change

12. Now I'll read to you some potential motivators. For each one, please tell me how much each would motivate you to not idle your vehicle when dropping-off or picking-up your children at school or the school bus stop. Please answer on a scale of 1 to 4, with 1 being not motivating at all and 4 being very motivating. (ROTATE AND READ)
- Not idling will preserve our air for future generations
 - Not idling will improve fuel consumption
 - Not idling will save money
 - Not idling will reduce emissions
 - Not idling will help you breathe easier
 - Not idling will ensure your child is healthier

- Idling at school is extremely dangerous to you child's health
- One car, in one month can put out three pounds of emissions just dropping off a child at school
- Child asthma is on the rise and there is a direct link to air quality
- Not idling will help protect the environment
- Not idling will extend the life of your car

13.If you saw a sign at the school drop off zone or school bus stop that said 'NO IDLE ZONE" how likely would you be to turn off you vehicle? Would you say:

- Very likely
- Likely
- Unlikely
- Very unlikely
- Don't know

14.How supportive would you be of your schools making it mandatory to NOT idle your vehicle? Would you say:

- Very supportive
- Supportive
- Unsupportive
- Very unsupportive
- Don't know

15.How likely would you be to sign a pledge that said you promise not to idle your car for more than 30 seconds at a school zone or school bus stop? Would you say:

- Very likely
- Likely
- Unlikely
- Very unlikely
- Don't know

Information Needs

16.Now I'm going to read to you a list of information sources. For each source please tell me how influential each source would be in convincing you to not idle your vehicle. Please answer on a scale of 1 to 4, with 1 being not influential at all and 4 being very influential. (ROTATE AND READ)

- Media
- school officials
- State Department of Ecology
- doctors (pediatricians)
- air quality organization
- environmental group like Sierra Club
- Federal Government
- Local government
- Any others (specify)

Demographics

These last few questions are for classification purposes only so that we can group your responses with those of other participants. Again, your responses are completely confidential.

17. How many cars or passenger trucks are owned by your household ?

18. How many of those vehicles are 10 years old or older?

19. How many of those vehicles use diesel fuel?

20. Has air quality from any source affected your health or the health of anyone in your household?

- Yes
- No
- Don't know

21. How would you rate the efforts to control air pollution in your community? Would you say:

- NOT ENOUGH IS BEING DONE
- THE RIGHT AMOUNT OF EFFORT IS GOING TOWARD THIS
- TOO MUCH IS BEING DONE
- Don't know

22. How would you describe the area where you live? Would you say it is:

- urban
- suburban
- rural
- Don't know

23. Which of the following categories best describes your age?

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65 -74
- 75 & older
- REFUSED

24. Which of the following income categories applies to your household's before tax total annual income for 2002? [READ LIST UNTIL GROUP IDENTIFIED]

- Under \$20,000
- \$20,000 - \$34,999
- \$35,000 - \$49,999
- \$50,000 - \$74,999
- \$75,000 - 99,999
- \$100,000 and above
- refused

25. Please confirm your zip code. _____

Those are all the questions I have for you today. Thank you very much for your participation.

26. RECORD GENDER

- Male
- Female