

# Secondhand Smoke

April 9, 2002

An overview of the issue by Polly Anderson

Note: This overview was originally prepared for and presented to the Health District board of directors on January 26, 2002. Additions to the paper have since been made.

## Background

The City of Fort Collins passed their current clean air ordinance in the mid 1980s. Members of the Alliance for Smoke-free Kids and Communities asked the City Council to update the ordinance in 2000. Following that request, the Council directed staff to conduct community outreach and education about secondhand smoke. City staff joined forces with the Larimer County Department of Health and Environment to conduct that education and outreach. (Poudre Health Services District also participated in some of the outreach.)

In Spring 2001, Council reviewed city staff findings, directed staff to continue outreach and placed the issue on the Council's calendar for April 2002. In the intervening year, individual council members also expressed a desire that other local boards — particularly health boards — take a stand on this issue.

In January, the County Board of Health passed a resolution recommending that the City of Fort Collins pass a 100% smoke free ordinance. Other local boards, including the Youth Advisory Board have made similar recommendations.

In February of this year, the issue was moved from the Council's calendar to the City's Health and Safety Committee, of which three council people are members. The Health and Safety Committee considered the issue of secondhand smoke on March 21, 2002. The Health and Safety Committee directed City staff as follows:

1. Continue outreach and education, particularly with restaurant owners
2. Put together several options for updating the ordinance for consideration at the June 4 City Council study session

## Why is this issue important?

Secondhand smoke is a real — and preventable — health issue affecting our community. More than 82% of local adult residents choose not to smoke (Community Health Survey, Fall 2001); yet many are exposed to secondhand smoke at home, in public places and at worksites.

The Health District currently offers smoking cessation services through Health Bridge and is co-leading the Community Partnership for Tobacco Prevention and Cessation with the Larimer County Department of Health and Environment. The Partnership is organized around the Centers for Disease Control and Prevention's best practices to:

- Reduce youth initiation
- Promote quitting among youth and adults
- Reduce exposure to secondhand smoke

Additionally, Health District staff have participated in community outreach and education about secondhand smoke with the Larimer County Department of Health and Environment and the City of Fort Collins.

## **Secondhand Smoke: Definitions and Background**

### **Secondhand smoke is a carcinogen**

- Environmental tobacco smoke (ETS) is the complex mixture of approximately 4,000 constituents (43 of which are known carcinogens), formed from the escaping smoke of a tobacco product and the smoke exhaled by a smoker. The characteristics of ETS change as it ages and mixes with other constituents in the ambient air.
- Exposure to ETS has been linked to a variety of adverse health outcomes. The Environmental Protection Agency has classified environmental smoke as a Group A Carcinogen, meaning it is known to cause cancer and there is no safe level of exposure.

### **Secondhand smoke causes health problems in otherwise healthy non-smokers**

- As early as 1986 the Surgeon General concluded that involuntary smoking is a cause of disease, including lung cancer, in healthy nonsmokers (Centers for Disease Control, 1986)
- Secondhand smoke is associated with heart disease and lung cancer in non-smokers.
- While there is unequivocal scientific evidence that ETS exposure is an important contributor to lung cancer, coronary artery disease and reductions in respiratory health and function, some researchers have questioned whether the amount of risk has been overestimated in some studies.
- **See Appendix A for more information about the local impact of secondhand smoke on the non-smoking population.**

### **Secondhand smoke is dangerous for children**

- Children who breathe secondhand smoke are more likely to suffer from pneumonia, bronchitis, ear infections and asthma. In 1994, 250,000 children got lung and bronchial infections and 11,000 were hospitalized from secondhand smoke nationally. (CDC 1995)
- There is an established link between secondhand smoke and Sudden Infant Death Syndrome (SIDS). In fact, it is considered an independent risk factor for SIDS. (CA EPA 1997)

### **Secondhand smoke is a workplace hazard**

- The 1991 National Health Interview Survey revealed that people who were exposed to ETS were more likely to report one or more days of restricted activity, bed confinement and work absence. (Mannino et al, 1997)
- An analysis of five different studies found a 39 percent increase in risk of lung cancer in workers exposed to environmental tobacco smoke while at work, compared to those not exposed during work hours. (Wells, 1998)
- A study sponsored by the National Cancer Institute shows that worksite smoking policies vary greatly in the United States. (Gerlach et al, 1997)
  - While approximately 80% of workers are covered by some type of workplace smoking policy, less than half are covered by policies that prohibit smoking in both the work area and public or common areas of the workplace.
  - The prevalence of having a workplace policy varied dramatically by:
    - Sex of the worker: 51% of women versus 40% of men were covered by a smoke-free policy.
    - Type of work: 80% of health care employees versus 21% of food service workers were covered by a smoke-free policy. 54% of white collar workers were covered by a smoke-free policy, versus 35% of service workers, and 27% of blue collar workers.
    - Age: One third of workers age 15-19 were covered versus 41 percent of those aged 20-24.
- Employees who work in bars or restaurants are at a higher risk of developing adverse health effects than other employees.
  - The most heavily exposed restaurant workers breathe the equivalent of 1.5-2 packs of cigarettes a day. (Siegal, 1993)

- Even with increased ventilation standards, this air contains 1.6 to 2.0 times the concentration of smoke in typical workplaces. (Siegal, 1993)
- Smoke levels in bars are 3.9 to 6.1 times higher than in offices, and 4.5 times higher than in residences which allow smoking. (Siegal, 1993)
- This exposure to unhealthy air takes its toll on the health of restaurant and bar employees.
  - A cohort of 53 California bartenders were followed before and 4-8 weeks after legislative prohibition of smoking in bars. (Eisner et al, 1998)
    - Before the ban, 74% reported respiratory symptoms such as wheezing, labored breathing, coughing, and phlegm production. After the ban, only 59% reported these respiratory symptoms.
    - Lung function significantly increased after the ban.
  - Restaurant workers in Massachusetts have a 50% greater risk of developing lung cancer compared to other occupations. (Brooks, 1995)

See Appendix B for additional information on secondhand smoke and health.

## **Secondhand Smoke: Options for Reducing Exposure**

There are three major policy options available to address ETS exposure in public places:

- Policies that allow designated smoking areas
- Policies that allow smoking only in separately ventilated areas
- Policies that require a complete smoking ban

CTEPPA, Lung, the Association for Nonsmoker's Rights and many others working in tobacco control recommend a complete smoking ban. The tobacco industry, through the Phillip Morris Options Program, advocate accommodation of smokers/non-smokers through ventilation systems.

### **Separate sections**

Non-smoking and smoking sections do not prevent the movement of air from section to section.

- American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) and the Environmental Protection Agency (EPA) specify that smoking/non-smoking areas must be completely separated and that smoking areas be ventilated directly to the outside to be effective.
- The 1986 Surgeon General Report states that separate sections reduce, but do not eliminate, exposure to ETS. This data has been verified in a study by Repace in 1994.

### **Ventilation systems**

Ventilation systems are designed to remove the odor of smoke, but do not remove all of the carcinogenic and disease-causing agents found in secondhand smoke. The standard of "no smoking" has been set by the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), the agency which acts as the standards-setting body for the ventilation industry. (ASHRAE, 1990)

- To reach a level of risk acceptable by federal standards, ventilation effectiveness must be increased 270-fold... which is highly impractical.
- The EPA estimates a cost of \$1 per square foot, per year to double ventilation performance. Thus, a 5,000 square foot restaurant would spend \$5,000 per year to improve air quality, which would still fall below the needed 270-fold improvement.

Numerous studies and conclusions made by OSHA, EPA and NIOSH conclude that ventilation systems do not protect the public's health.

- The Occupational Health and Safety Administration (OSHA) state in 1994 "...from the industrial hygiene perspective, general ventilation as delivered by heating, ventilation and air condition (HVAC) systems, is

not an acceptable engineering control measure for controlling occupational exposures to ETS (environmental tobacco smoke).” (Department of Labor, 1994)

- Former EPA official and leading ventilation expert James Repace concluded in a June 2000 report, “...it is clear that dilution ventilation, air cleaning, or displacement ventilation technology even under moderate smoking conditions cannot control ETS (or secondhand smoke) risk...for workers or patrons in hospitality venues without massively impractical increases in ventilation.” (Repace, 2000)

Phillip Morris’ accommodation program, Options, does not make health claims, and states the following as a program goal: “helping businesses that choose to allow smoking find effective, practical ways to provide comfort to both non-smoking and smoking customers.” (Options, 2002)

### **Complete smoking bans**

According to the Surgeon General of the United States, “smokefree environments are the most effective method for reducing ETS exposure. Healthy People 2010 objectives address this issue and seek optimal protection of nonsmokers through policies, regulations, and laws requiring smoke-free environments in all schools, work sites, and public places.”

In 2000, the Task Force on Community Preventive Services “strongly recommended” smoking bans and restrictions as a means for reducing exposure to secondhand smoke. The Task Force also noted several studies indicating the positive effect smoking bans have on cessation and consumption reduction.

## **Secondhand Smoke: Smoking Bans**

### **Smoking bans reduce exposure to secondhand smoke**

- The Task Force on Community Preventive Services found that smoking bans and restrictions (through policies, regulations and laws) reduce exposure to ETS. (MMWR November 2000)

### **Smoking bans help youth and adults quit smoking**

Research has also shown that smoke-free work sites provide a supportive environment for those trying to quit smoking, and send a strong message to youth about smoking.

- Smoke-free work sites increased quit rates for smokers by up to 20% one year after the smoking ban was enacted. (Stillman, 1990)
- Youth and young adult smoking decreased due to smoking restrictions in public places and work sites. (Tauras & Chaloupka, 1999)

### **Smoking bans reduce the consumption of tobacco products**

- The average daily consumption of cigarettes decreased in adults working in smoke-free worksites. (Evans et al, 1997)
- Work place laws decreased cigarette and snuff use among adults. (Ohsfeldt et al, 1998)
- Youth and young adult smoking decreased due to smoking restrictions in public places and work sites. (Tauras & Chaloupka, 1999)

### **Smoking bans are associated positively with a reduction in youth initiation**

- Adolescents who work in non-smoking environments are 32% less likely to smoke than adolescents who work in smoking environments. (JAMA 2000)

### **The economic impact of smoking bans is much debated**

Since the first municipal smoking bans appeared in the 1980s, many surveys and studies have been conducted to evaluate the impact of smoking bans on the hospitality industry. A variety of approaches to measuring impact have been used. The most objective measures have been based on actual revenue figures from the bar and restaurant business. Other studies have looked at numbers of employees in the hospitality industry, numbers of restaurants and numbers of new restaurant permit applications. Proprietor and potential patron opinion surveys were also used to estimate impact. Studies also varied in terms of research design, the use of control

communities, the statistical approaches used to summarize effects and whether or not attempts were made to control for economic trends and other potential confounders. Seven studies in the English language peer-reviewed literature that estimated the impact of a complete ban on smoking in restaurants based on taxable sales receipts — the most objective outcome measure among those used — found no negative economic impacts from bans.

These studies are not without weaknesses. Sample selection biases, the limitations of ecological designs in estimating impact for individual businesses, limited attempts or ability to control for differences between communities with and without smoking bans and questions of whether the data can be generalized to communities with different smoking rates, economic climates, types of bans or enforcement approaches have all been cited as weakness of these studies.

The methodological limitations of these studies is balanced somewhat by their consistency. Even if *all* studies of the impact of smoking bans in the hospitality industry published in the peer-reviewed literature are considered, we found only one that concluded that the overall economic impact of smoking bans was negative. That study was based on a survey of bar and restaurant owners, which asked them to predict their establishment's future revenues in the event a more restrictive smoking ordinance was passed in their communities. This study was funded by the tobacco industry.

**The following conclusions were found in peer-reviewed, scientific journals:**

- 81 localities in 6 states have conducted evaluations of the economic impact of smoke-free legislation. According to a meta-study of these evaluations, “the results were the same...Smoke-free laws do not reduce business or profits, and sometimes may boost them.” (Glantz, 1999)
- Real taxable sales from eating/drinking establishments and hotels in New York City increased 2.1 and 36.9 percent, respectively, compared with levels 2 years before the smoke-free laws took effect. During the same period, real taxable sales from eating/drinking establishments and hotels in the rest of the state experienced a 3% decrease and a modest 2.4 percent increase in sales, respectively. (Hyland et al, 1999)
- New restaurant jobs in New York City increased 18% after implementation of the smoke-free law, while the rest of the state had job gains of only 5%. (Hyland & Cummings, 1999)
- A Cornell University School of Hotel and Restaurant Administration study found that smoke-free policies increase patronage of nonsmokers sensitive to smoke, and compensate for any initial drop in smoker patronage by almost 2.5 times. (Corsun et al, 1996)
- A study of tourism rates from Boulder CO, New York City, NY, San Francisco, CA, Los Angeles, CA, and other cities with smoke-free laws indicates that tourism was continuous or increased after the ban. (Glantz and Charlesworth, 1999)
- West Lake Hills, a suburb of Austin TX with a population of 3,000, found that restaurant sales did not decrease after implementation of a smoke-free policy. (MMWR 44 370-372, 1995)
- A study of the effect of local smoke-free policies in Massachusetts found that these policies had no effect on restaurant business. (Bartosch & Pope, 1999)
- Long-term economic impact studies from Aspen, Snowmass, and Telluride found that smoke-free policies did not hurt business. (Glantz, 1999).
- A random sample of restaurant and bar owners across the country conducted in 1996 found that 6% of owners predicted sales revenues would increase after a complete restaurant smoking ban. 39% predicted such an ordinance would decrease revenues, 50% expected no impact and 4% had no opinion. Bar owners were twice as likely as restaurant owners to predict that their revenues would decline. (Dunham & Marlow 2000)

**For completeness, we've included some studies published on the Phillip Morris Options web site**

The only studies finding a negative impact on revenues due to smoking bans were funded by the tobacco industry. Most of these were not published in the peer-reviewed scientific literature. For completeness, the findings of the studies published on the Phillip Morris Options web site — all of which were opinion surveys — were reviewed and are summarized below. Two of these surveys asked owners of bars and/or restaurants whether or not a recently passed smoking ordinance had affected revenues. Another two asked owners to predict whether or not

they thought revenues would be affected if such an ordinance were passed in the future. A survey of consumers inquired about what they predicted their future attendance at bowling alleys would be if an ordinance were passed. Three of the surveys were conducted by survey research firms; two were conducted by Phillip Morris own researchers. All used random sampling methodologies. A sample of the findings follows:

- 59% of California business owners in alcohol-serving establishments reported a decrease in business two-months after California's 1998 smoking ban. Owners reported a 26% decrease in business on average (mean response). The study also noted that stand-alone bars/taverns were more greatly impacted than bars connected to restaurants/hotels. (Peat Marwick, 1998)
- 30% of California business owners in alcohol-serving establishments reported that the smoking ban caused them to lay off employees or cut working hours/shifts. (Peat Marwick, 1998)
- If a smoking ban were imposed at all bowling centers across the United States, bowling center revenues were projected to decrease by \$360-504 million. (ETC Institute, 1998)
- Survey data suggests that the net decrease in final demand for Boston restaurants (following a September 1998 restaurant smoking ban) will be 8%. (Sollars, D. & Ingram J. 1999)

### **Ban advocates note these positive effects of a smoking ban**

Examples cited by smoking ban advocates include:

- Reduced cost in cleaning and replacement of carpets, drapes, air conditioners and other equipment.
- Reduction in employee absenteeism
- Customers do not have to wait for a table because the non-smoking section is full.
- Faster table turnover occurs at restaurants because smokers do not linger after finishing a meal.
- Food tastes and smells better without smoke.
- No customer complaints occur due to drifting smoke.
- Parents are more likely to bring children to dine where the air is clean.
- Individuals with allergies, asthma, and other respiratory problems become more regular patrons.
- No risk of lawsuits from employees who become ill from a smoky work environment. A non-smoking waiter was awarded \$85,000 out-of-court worker compensation settlement after suffering a heart attack caused by working in a smoke-filled restaurant for 5 years. (Sweda, 1998)

### **Ban opponents note these negative effects of a smoking ban**

- Smoking bans hurt business
- Ventilation systems are adequate
- Smoking bans interfere with individual rights: the rights of smokers and the rights of business owners to make their own business decisions
- If Fort Collins residents want smoke-free bars and restaurants, the market will comply
- People who don't want to be exposed to secondhand smoke in the workplace can work somewhere else
- Most Fort Collins businesses are smoke-free so additional regulation isn't needed
- Smokers linger in bars and spend more money on drinks and food

### **Smoking bans are heavily opposed by tobacco companies because they're bad for business**

- A 1992 Phillip Morris internal document No. 2045447770-2045447806 notes: "Total prohibition of smoking in the workplaces strongly affects industry volume. Smokers facing these restrictions consume 11-15% less than average and quit at a rate that is 85% higher than average. Only 6.5-10.3% of smokers face total workplace prohibition but these restrictions are rapidly becoming more common.
- Another Philip Morris documents notes "Financial impact of smoking bans will be tremendous — three to five fewer cigarettes per day per smoker will reduce annual manufacturer profits a billion dollars plus a year." (No. 2025771934 2025771937)

### **Smoking bans can change community norms about smoking**

Communities and policy makers have the capacity to influence behavior through policy regulation. Two successes in recent history of how policy has changed community behavior include seat belt use and reductions in drunk driving.

**Secondhand Smoke: Current Fort Collins Law**

There are currently separate smoking rules for public places, restaurants, bars and other workplaces in Fort Collins. The ordinance specifies that smoking is banned in public places, allowed in bars and taverns and requires non-smoking sections in restaurants seating more than 30. For a complete review of the current ordinance, please see page nine.

An increasing trend in the number of smoke-free restaurants in the state of Colorado and Fort Collins has been documented by the Group to Alleviate Smoking Pollution (GASP) in their Colorado Guide to Smoke-Free Dining. More than 12 times as many restaurants in Colorado are smoke-free today, compared to 1992. (Approximately one-half of all restaurants in Colorado are smoke-free today.)

June 2001 Fort Collins restaurant statistics:

	Smoke-free	Allow smoking	Total	% Smoke-free
All restaurants	165	138	303	54%
Full service	55	99	154	36%

**Secondhand Smoke: What do Local Residents Think?**

**Most residents support smoke free policies**

- 74.5% of local residents "support policies or ordinances that would protect the public against secondhand smoke (in workplaces, indoors, bars, restaurants)." (Community Health Survey, 2001)
- 63.6% "think there should be a law to protect employees that are exposed to secondhand smoke (i.e. restaurant workers)." (Community Health Survey, 2001)

Several studies by the Larimer County Department of Health and Environment and an informal survey by the City of Fort Collins conducted in the last two years have found similar results.

**Secondhand Smoke: Who is Working on It?**

**Community leader education locally**

- Larimer County Department of Health and Environment (LCDHE)
- City of Fort Collins
- Health District

**Restaurant and bar education locally**

- American Lung Association
- Colorado Tobacco Education and Prevention Alliance (CTEPA)
- GASP (Group to Alleviate Smoking Pollution)

**Media campaigns local/statewide**

- State Tobacco Education and Prevention Partnership (STEPP)
- GASP
- CTEPA
- American Lung Association

- LCDHE

**Who's working for smoking bans locally?**

- Larimer County Department of Health and Environment
- Alliance for Smoke Free Kids and Communities
- American Lung Association
- Colorado Tobacco Education and Prevention Alliance (CTEPA)

**Who's working for smoking bans in Colorado?**

- CTEPA
- Colorado Department of Public Health and Environment
- GASP
- American Lung Association

**Who might oppose smoking bans in our community?**

- In Montrose, the Libertarian party was active in the unsuccessful attempts to defeat that city's ordinance
- Property rights groups
- The tobacco industry

## Secondhand Smoke: What is the Gold Standard of a Clean Air Ordinance?

A model ordinance (of the gold standard) from CTEPA is compared below to the current Fort Collins ordinance.

<b>Current Fort Collins Law</b>	<b>Model Ordinance</b>
<p>Smoking is prohibited in:</p> <ul style="list-style-type: none"> <li>• Public places (enclosed, indoor), stores, theaters, banks, meeting places and businesses which serve the public</li> <li>• Lobbies, hallways, restrooms, elevators, common areas</li> <li>• Common areas of healthcare facilities</li> <li>• Room in healthcare facilities shared with non-smokers</li> </ul>	<p>Smoking prohibited in public places, including but not limited to:</p> <ul style="list-style-type: none"> <li>• Elevators, restrooms, lobbies, reception areas, hallways, common areas</li> <li>• Buses, taxis and other public transit under the authority of the city</li> <li>• Service lines (where one or more people are waiting in line to receive service)</li> <li>• Retail stores</li> <li>• Public areas of all businesses, aquariums, galleries, libraries and museums</li> <li>• Movie theaters and state theaters (except are part of a performance)</li> <li>• Sports arenas and convention halls, including bowling allies</li> <li>• Every room, chamber, etc. of any building under the control of the City</li> <li>• Waiting rooms, hallways, wards, semi-private rooms etc. in healthcare facilities</li> <li>• Common areas of apartments, condos, trailer parks, retirement facilities, nursing homes and other multiple-resident facilities</li> <li>• Polling places</li> <li>• Bingo parlors</li> </ul>
<p>Restaurants seating more than 30 must have a non-smoking section:</p> <ul style="list-style-type: none"> <li>• Large enough to accommodate patrons requesting non-smoking area</li> <li>• That is at least 50% of floor area</li> <li>• That is clearly labeled</li> </ul>	<p>No smoking in restaurants            No smoking in bars            No smoking in any enclosed facilities within any place of employment</p>
<p>Workplace restrictions:</p> <ul style="list-style-type: none"> <li>• Smoke-free workplaces must be provided at employee request</li> <li>• No more than 50% of floor area may be designated as smoking area</li> <li>• Fully enclosed offices/room occupied exclusively by smokers may be designated as smoking areas</li> </ul>	<p>Other specifications:</p> <ul style="list-style-type: none"> <li>• Signs must be posted conspicuously at every building entrance</li> <li>• Ashtrays must be removed from no-smoking areas</li> <li>• No smoking within 20 feet of entryways</li> </ul>
<p>Smoking is allowed in:</p> <ul style="list-style-type: none"> <li>• Bars and taverns</li> <li>• Tobacco stores</li> <li>• Private functions</li> <li>• Restaurants seating 30 or less</li> </ul>	<p>Smoking is not regulated in:</p> <ul style="list-style-type: none"> <li>• Private homes (except when used as care facility)</li> <li>• No more than 25% of hotel and motel rooms rented to guests</li> <li>• Retail tobacco stores</li> <li>• Facilities (restaurants, bars, hotel meeting rooms etc.) when used for private functions</li> </ul>

## **Secondhand Smoke: What Now?**

The City Council will revisit the issue of smoking in public places at their June 4 study session. The Health District has developed this overview of the issue in lieu of a pro/con analysis of a specific recommendation, since no specific recommendations have yet been presented to City Council. The Health District made the following decisions in relation to this issue at the April 19, 2002 board meeting:

1. Post this overview on the Health District web site
2. Share this overview with city staff, council members and air quality board members
3. Share this overview with the Community Partnership for Tobacco Prevention and Cessation and others interested in this issue
4. Offer to help the city with additional research on this issue
5. Recommend that the city adopt a 100% smoke free ordinance that covers all employees and all public places

Staff were further directed to coordinate public announcement of the availability of this paper and of the Health District's recommendation with others working on the issue of secondhand smoke.

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## Appendix A

### Annual Estimates of Morbidity and Mortality of Secondhand Smoke

Condition	US*	Colorado**	Larimer County***
<b>Developmental Effects</b>			
Low birth weight	9,700-18,600 cases	146-279 cases	8-15 cases
Sudden Infant Death Syndrome (SIDS)	1,900-2,700 deaths	29-41 deaths	1-2 deaths
<b>Respiratory Effects in Children</b>			
Middle ear infection	0.7 to 1.6 million physician office visits	10,500 to 24,000 physician office visits	557-1,272 physician office visits
Initiation of asthma	8,000 to 26,000 new cases	120 to 390 new cases	6 to 21 new cases
Increased asthma symptoms	400,000 to 1 million children	6,000 to 15,000 children	318 to 795 children
Bronchitis or pneumonia in infants or toddlers	<ul style="list-style-type: none"> <li>• 150,000 to 300,000 cases</li> <li>• 7,500 to 15,000 hospitalizations</li> <li>• 136 to 212 deaths</li> </ul>	<ul style="list-style-type: none"> <li>• 2,250 to 5,000 cases</li> <li>• 113 to 226 hospitalizations</li> <li>• 2 to 3 deaths</li> </ul>	<ul style="list-style-type: none"> <li>• 119 to 238 cases</li> <li>• 6 to 12 hospitalizations</li> <li>• 1 to 2 deaths in 10 years</li> </ul>
<b>Cancer</b>			
Lung	3,000 deaths	45 deaths	2 deaths
<b>Cardiovascular Effects</b>			
Ischemic heart disease	35,000 to 62,000 deaths	525 to 930 deaths	28 to 49 deaths

\*US data from the US Environmental Protection Agency. (1992). Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders. Washington DC: USEPA Office of Research and Development.

\*\* Colorado data has been extrapolated by multiplying the US figures by 1.5%, or the approximate percentage of US population residing in Colorado.

\*\*\* Larimer County data extrapolated by multiplying the Colorado figures by 5.3%, or the approximate percentage of Colorado population residing in Larimer County.

## Appendix B

### Health Effects Associated with ETS Exposure

(Entire page from the National Cancer Institute, Environmental Tobacco Smoke fact sheet, 2/14/2000)

<b>Developmental Effects</b>	<ul style="list-style-type: none"> <li>• Low birth weight or small for gestational age</li> <li>• Sudden Infant Death Syndrome (SIDS)</li> </ul>
<b>Respiratory Effects</b>	<ul style="list-style-type: none"> <li>• Acute lower respiratory tract infections in children</li> <li>• Asthma induction and exacerbation in children</li> <li>• <a href="#">Chronic</a> respiratory symptoms in children</li> <li>• Eye and nasal irritation in adults</li> <li>• Middle ear infections in children</li> </ul>
<b>Carcinogenic Effects</b>	<ul style="list-style-type: none"> <li>• Lung Cancer</li> <li>• Nasal Sinus Cancer</li> </ul>
<b>Cardiovascular Effects</b>	<ul style="list-style-type: none"> <li>• Heart disease mortality</li> <li>• Acute and chronic coronary heart disease morbidity</li> </ul>

Other health effects that were found to be possibly associated with ETS were as follows:

- Spontaneous abortion (miscarriage);
- Adverse impact on cognition and behavior during child development;
- Exacerbation of cystic fibrosis (a disease marked by overproduction of mucus in the lungs);
- Decreased lung function; and
- Cervical cancer.

However, further research is needed to confirm the link between the above (five) health risks and ETS.